The Hunterian Lecture

ON

SOME INFECTIONS OF THE TONSILS.

Delivered before the Royal College of Surgeons of England on Feb. 19th, 1915,

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MR. PRESIDENT, LADIES, AND GENTLEMEN,—My first duty is to thank you for the honour you have done me by appointing me one of your Hunterian professors during the present year.

INTRODUCTION.

In selecting a subject for this lecture I was guided mainly by the fact that for some time I have been studying the pathology of the tonsils, and also because most questions relating to them have been for some time past under discussion. Some problems have been satisfactorily dealt with, others are in the process of elucidation, while there remain more which need much further investigation before definite opinions can be stated about them or any conformity of views reached. It seemed to me wise at the same time to review, as far as possible, the subject of tonsil infections. While some authorities consider that the tonsil is ruthlessly and unnecessarily sacrificed, others are tardy in recognising the part played by that organ as a focus of infection, and perhaps err in the opposite direction. I hope to be able to give some guidance in this matter, and quote the principles and results of my own practice.

ANATOMY.

The faucial tonsil which lies between the pillars of the fauces is the most complex part of the lymphoid tissue situated at the entrance of the alimentary canal. In structure it resembles a lymphatic gland, and is surrounded for the most part by a tough fibrous capsule, which is connected to the structures forming the pharynx by loose areolar tissue, except at its lower pole, where it receives its main vessels and has some muscular attachments. This capsule allows the tonsil to move on the pharyngeal wall and is a potent protection against the spread of infection. The remaining surface of the tonsil is exposed in the pharynx, its extent varying greatly in degree. From this pharyngeal aspect a pocket projects into the tonsil, which is in reality a hollow organ, this cavity being intracapsular and known as the tonsillar fossa. The pharyngeal aspect of the tonsil is covered by the same epithelium as the general surface, and is thrown into folds which surround numerous depressions or lacunæ; these extend through the lymphoid tissue, so that their blind extremities abut on the capsule. Certain folds of mucous membrane pass from the faucial pillars to the surface of the tonsil and may very considerably narrow the entrance to the tonsillar fossa. As the lymphoid tissue grows on the sides and folds, the fossa may be largely obliterated, and later the tonsil appears almost solid. In its commonest form the tonsil consists of an almost solid lower pole—containing narrow lacunæ, while the fossa lies above the level of the soft palate and is bounded by folds of lymphoid tissue. More or less of the tonsil may project beyond the inner border of the faucial pillars. As the tonsil enlarges it tends to project inwards, but it may remain entirely behind the anterior faucial pillar, and I estimated from an examination of 500 tonsils that only in 15 per cent. of cases did more project than remain hidden.

The main efferent lymphatic vessels pass from the tonsil to a gland belonging to the deep cervical chain, and situated below and behind the angle of the jaw in the interval between the internal jugular and common facial veins. Afferent lymphatics have not been demonstrated, but experiments by Lénárt, Henke, and others have shown that pigment injected into the nasal mucous membrane may be found after a short interval in the substance of the tonsil, and they suggest that such afferent lymphatics do exist.

The comparative anatomy of the tonsil investigated by Hett in this country, and whose specimens are present in the Museum, demonstrates that in successive grades of animals the tonsil increases in complexity from a mere depression lined by lymphoid tissue to the complicated arrangement found in the higher species. The lacunæ, at first solid columns of epithelium, break down and form cavities which remain throughout life. As we should expect, the tonsils most nearly corresponding to the human are those of the monkeys and anthropoid apes.

PHYSIOLOGY.

The tonsil, as already stated, forms part of the ring of lymphoid tissue which guards the entrance to the respiratory and digestive tracts. The exact nature of its function is difficult to determine, as extirpation of the organ, so far as can be discovered, causes no defect in the economy. No doubt its function can still be carried on by the remaining lymphoid tissue in the vicinity. As with adenoid tissue elsewhere it reaches its maximum growth in childhood and gradually atrophies as adult life is reached. The maximum activity is correlated to that time of life when infection is most frequent, as with the remainder of the lymphoid tissue, situated along the whole course of the alimentary canal. An examination of the tonsil shows it to have a similar structure to a lymphatic gland, and as such it is actively engaged in the production of lymphocytes. It may receive lymph from the nasal cavities and act as a filter and protecting agent in infections in this region. It has been shown that pigment granules injected into the nasal mucous membrane find their way into the tonsil and in some cases may be extruded from here on to the free surface. The lymphocytes also are constantly reaching the surface, where they mingle with the oral secretions. An examination of the contents of the lacunæ shows them to be occupied by lymphocytes, leucocytes, and organisms. Many of the latter are ingested and destroyed in the lacunæ, while in some cases they find their way through the epithelium—again to be received, in normal conditions, by leucocytes, where they are satisfactorily accounted for. This process may be studied by the application of carmine granules to the surface of the tonsils. There thus appears to be a constant stream of cells wandering to the surface of the tonsil and finding their way into the lacunæ and oral cavity, in which places they may act as phagocytes, not only to foreign particles but to organisms as well. There is no doubt that their function is protective and the tonsil

enlarges temporarily beyond normal limits to deal with increased infection. In addition to this active defence, the lacunæ occupied by organisms of various nature, pathogenic and others, act as culture tubes, and it seems probable that under strictly normal conditions the epithelium is a sufficient protection against the entrance of organisms into the tonsillar tissue, but the balance is so delicate that it is frequently found that organisms do pass into the substance of the tonsil, where in the great majority of cases they are destroyed, and by this process of absorption of organisms or toxins the tonsils may act as immunising agents to the body as a whole.

There are some who ascribe some particular internal secretion to the tonsil, but the evidence for this is by no means conclusive. In summing up we may state that the tonsils may act as lymphatic glands for certain regions of the nasal cavities. They act also as a protection against the constant presence of organisms in this part of the pharynx—either in the mouth, lacunæ, or tonsil substance—should they reach it through some breach in the surface. It is also probable that in the exercise of this phagocytosis they confer some immunity against the organisms inhabiting this region.

BACTERIOLOGY.

The tonsils are subject to the presence of organisms during almost the whole of life, both on their surface and in the lacunæ which penetrate their substance. Under normal conditions no active invasion is apparent, but under the influence of local injury or lowered resistance infection takes place with effects of very varying magnitude.

The regular inhabitants of the mouth and throat may be found on cultural examination of the contents of the lacunæ. They vary in proportion at different times, and on occasions rarer pathogenic forms can be found or show their presence by causing some lesion. Dwyer, in an examination of 72 cases, found the following organisms present in health, the varieties ranging from 1 to 7 (Table I.).

TABLE I.—*Bacteriology of the Tonsils* (*Dwyer*).

	Cases.		Cases.
Streptococcus (various types)	50	Diplococcus mucosus capsulatus	4
Pneumococcus	14	Influenza bacillus	5
Staphylococcus	20	Pyocyaneus	1
Micrococcus catarrhalis	12	Friedländer's bacillus	1
Diphtheria bacillus (5 true type, 5 pseudo, 5 not determined.)	15	Spirillum	1
		Long curved bacillus	1

In pathological conditions the normal balance of varieties may be upset, while additional organisms may be present, such as (1) the bacillus of tuberculosis; (2) actinomycosis; and (3) bacillus coli. The most constant organism present, as is well known, is the streptococcus, and it can be found in nearly 100 per cent. of examinations. All the organisms above mentioned are capable of producing infection of the tonsil, though some may exist in contiguity with it throughout a lifetime and produce no harmful effect.

Active invasion of the tonsil may occur through the lymphatic channels leading from an infective condition of the nose. More often, however, the infection is from the surface and is determined occasionally by injury, but more often without any gross mechanical factor, it being dependent on an increased virulence of the organism or some lessening of the chemical defences of the body. The organisms are contained at the time in the secretions of the mouth or may be carried to the tonsil in food, such as will be shown to occur with the tubercle bacillus, or by air, especially in mouth-breathers. The organisms in the food may be forced directly into the lacunæ or may be carried in on some foreign particles, such as a fig-seed, which I have found on at least two occasions.

The lesion may be limited to the surface of the organ and be associated with a catarrhal condition of the rest of the pharynx. The invasion may then spread to various depths and become subepithelial, lacunar, or in the substance of the tonsil. From the tonsil spread is limited largely by the capsule, but infection may take place through this, either by means of the lymphatics or through some aperture, and so invade the cellular tissue, causing peritonsillar infection. Further spread passes to the lymphatic glands, and from here to the circulation, and may become widespread.

All forms of inflammation may subside completely and leave little trace of their presence. Fibrosis or suppuration may result in each situation. In some cases, as in other parts of the body, infection may not be entirely overcome and may show itself at irregular intervals during the whole life of a person, or the infection may become encapsulated, as in some of the tonsils exhibited.

The effect of organisms on the tonsil varies considerably, depending on the nature of the organism and length of time that infection has been occurring. It may have a stimulating influence and cause hypertrophy, this overgrowth being of such a nature that it subsides when the infection is overcome or removed. This enlargement may be followed by atrophy or the infected tonsil from the first may not enlarge; indeed, the smallest tonsil may be grossly pathological, and such disease may be entirely hidden from view, and can be judged only by its results on the lymphatic glands or rest of the body.

INFECTION.

Passing to consider some individual infections and their special manifestations, I need only mention that occasionally the tonsil is the focus of infection in syphilis and may be the seat of a primary chancre. It has been estimated that 10 per cent. of all extra-genital chancres make their appearance on the tonsil.

ACTINOMYCOSIS.

The streptothrix group of organisms may gain access to the throat and in rare cases settle in the tonsils to such an extent as to form a recognisable lesion. This consists in the production of a granuloma which may ulcerate and infect the neighbouring tissues. This tendency to spread locally causes the tonsil also to be involved secondarily in the pharyngeal and buccal forms of the disease. When an extensive lesion is present it is impossible accurately to determine the exact point of origin.

Ruhrah, in an analysis of 632 cases, found that the head and neck were involved in 57 per cent. of the cases. Of 109 cases occurring in the United Kingdom during the years 1884–1906, the face and neck were involved in 50, and of these 2 were situated in the tonsil. In a systematic examination of 75 tonsils removed for hypertrophy and examined by Wright, one case of actinomycotic infection was found, the patient being a boy aged 12 years. Similar cases have been recorded by Ruge and Lesin, the former mentioning four cases, the latter one.

The organism gains entrance in the food-supply and may lodge in carious teeth, in the tonsils, or

other parts of the mouth. It may be conveyed directly in grain, and two cases are reported where the husk of grain was known to have lodged in the tonsil a short time before the symptoms presented themselves. Johne also reports a case where he found a barley husk in the actinomycotic tonsil of a pig.

A more frequent source of origin must be looked for, however, as in other examples of actinomycosis, for a history of the ingestion of raw grain cannot always be obtained. Recent investigations have shown that the organism responsible for the disease occurs in milk, and it has been demonstrated that some cows considered clinically to be suffering from tuberculous udders were found on more careful examination to be affected with actinomycosis. Further researches are being carried out on this question.

The disease commences by a swelling which may be mistaken for an inflammation or sarcoma. Later ulceration occurs, with the discharge of pus containing the characteristic granules on which the diagnosis depends.

TUBERCULOSIS.

The tonsil is frequently the seat of tuberculosis; its situation is such that any bacilli entering the mouth and being swallowed pass over its surface and may gain entrance to the crypts, whether dust-borne in the air or in the food. The unfiltered air in mouth-breathers reaches this part directly, and the presence of tubercle bacilli in dust has been abundantly proved. An examination of sputa found on the ground was recently undertaken, and it was found that tubercle bacilli were present in 60 per cent. Of the food milk is probably the most important vehicle. Recent examination of the milk-supply of Edinburgh by Mitchell has shown that in 406 samples of milk from 406 shops tubercle bacilli were found in 82, or 20 per cent. The tonsil as the first part of the lymph system of the alimentary canal is frequently involved, but the remainder of the intestinal submucous lymph collections do not escape, and both lead to involvement of the neighbouring lymphatic glands.

The following table (Table II.) of results obtained by Dr. Stanley Griffith shows that the conditions can be produced experimentally. Feeding with

TABLE II.

Species of animal.	Number fed.	Tonsils tuberculous.	Neck glands tuberculous	Intestines tuberculous	Mesenteric and colic glands tuberculous
Chimpanzees ...	7	1	4	7	7
Rhesus monkeys	7	1	4	7	7
Baboons	14	9*	11	13	13
Calves	21	3	5	16	20
Goats	9	1	5	2	8
Pigs	34	8	21	10	32
Total	92	23 (25%)	50 (54·3%)	55 (59·8%)	87 (94·5%)

* A tenth had a tuberculous ulcer on the pharyngeal wall with normal tonsils.

tubercle bacilli infects the tonsil, and from here the cervical glands; in a similar way the same conditions are produced lower down—namely, infection of the lymphoid tissue of the intestine and mesenteric glands. This fact emphasises the importance of considering tuberculosis a generalised disease, and that if the tonsil is involved it is probable that there are similar and more extensive lesions in the alimentary canal.

Frequency of Tuberculosis of the Tonsil.

The frequency of tuberculosis of the tonsil has been variously estimated. Amongst tonsils removed for hypertrophy and examined for this disease, the percentage varies about from 3 or 4 to 6, and Table III. gives the figures arrived at by different

TABLE III.—*Examination of Hypertrophied Tonsils for Tuberculosis.*

Name.	Number.	Tuberculous.	—
Lermoyez...	32	5	Inoculation
Broca...	100	0	,,
Gottstein	33	4	,,
Pluder and Fischer	32	5	,,
Piffl	100	2	,,
Goure...	200	0	,,
Mitchell	90	9	,,
Latham	49	7	,,
Dieulafoy...	61	18	,,
Friedmann	54	1	,,
Total	762	51 (6·7%)	—

investigators. This percentage is probably too low, for in the first place the tonsil in this disease is often small, and the most reliable observations must be by a combination of methods, histological, cultural, and by inoculation. In grosser infections where the lung is involved, and in those dying from phthisis or from tuberculosis in other situations, the tonsil is much more often involved. The post-mortem record of those dying from phthisis shows that tuberculous infection is present in at least 90 per cent. of the cases (Table IV.). In tuberculosis

TABLE IV.—*Examination of the Tonsils in those Dying from Tuberculosis.*

Name.	Cases.	Tonsils tuberculous.	Death from phthisis.	Tonsils tuberculous.
Strassmann ...	21	13	15	13
Kruckmann ...	20	20	20	20
Walsham	34	20	20	20
Friedmann ...	40	17	—	—
Total	115	70 (60·8%)	55	53 (96·4%)

of the cervical glands the tonsils can be found to be tuberculous in at least 30 per cent. of the cases (Table V.).

TABLE V.—*Showing Tuberculosis of the Tonsil in Tuberculous Cervical Glands.*

Name.	Cases.	Tonsils tuberculous.	Operation.	Post-mortem examination.
Carmichael	50	7	Yes.	—
Kingsford	17	7	—	Yes.
Mitchell	72	24	Yes.	—
Hurd and Wright	12	9	—	—
Total	151	47 (31%)	—	—

Tuberculous Lesions of Tonsils and Cervical Glands.

When settled in the tonsil the tubercle bacilli produce their characteristic lesion—the miliary tubercle—which may undergo fibrosis or caseation. The tubercles may be situated near the mouth of the lacunæ, round their circumference, or in the

depths of the tonsil close to the capsule. The size of the infected organ varies considerably, most often it is enlarged and fleshy, in other cases small and shrunken. Unfortunately, there are no characteristic signs. The enlarged tonsil may be firm or unduly friable, or its substance may appear yellowish. In other cases it may contain a mass of caseous débris occupying a ragged cavity in the interior or a small chronic abscess surrounded by a firm capsule of fibrous tissue. The small tonsil may be fibrous and also contain a chronic abscess. Ulceration is rare; I have not yet seen a case in the child, but in the adult this sometimes occurs, usually late in the progress of the disease. Even when extensively diseased the capsule remains free and the tonsil can be readily dissected from its bed.

It is almost impossible to recognise the tuberculous tonsil clinically—its nature can only be suspected before removal, and on gross section after removal there is often considerable doubt. Its presence can be determined clinically, only by its effects—namely, infection of the cervical lymphatic glands. This lesion is undoubtedly the main importance of the tuberculous tonsil. In children affected with this condition, analysis shows that in 70 per cent. of the cases the tonsillar gland is involved, either alone or being the largest of a set occupying the side of the neck. From this gland the infection spreads to others situated around it, and may eventually involve the whole deep cervical chain. In rare cases the tonsillar gland overcomes the infection, while glands lower in the chain may caseate and form an abscess.

Unfortunately the tuberculous tonsil rarely causes symptoms apart from glandular infection. There is no pain, attacks of inflammation are rare, and appearances are normal. It is this which has so often led to the focus of infection in tuberculous cervical glands being overlooked. In some cases the glands become apparent and enlarged after a sore-throat, but even in these cases no secondary infection can be found in the gland. The tendency of the disease is towards natural cure, and the infection of both tonsil and glands may remain latent till adult or middle life is reached, when a tuberculous abscess appears insidiously in the region of the tonsillar gland. On evacuation of the abscess a small caseous or calcareous gland is found lying under the deep fascia which communicates with the abscess through a narrow opening.

Bovine and Human Infection: Preventive Measures.

The largest number of figures dealing with this infection of the cervical glands are those of Mitchell, whose results coincide with my own and whose figures I quote. In an investigation of the bacteriology of 72 cases of tuberculous glands from children in Edinburgh Mitchell found that the bacillus was of the bovine type in 90 per cent. and of human type in the remaining 10. The main tonsillar gland was involved in 50 cases of the above series, with secondary involvement of the surrounding glands in most cases. The tonsils in 64 cases were investigated, 24 of which showed histological tuberculosis. In experimental inoculation 19, or 30 per cent., of these gave a positive result, of which it was determined that bovine bacilli were present in 12 and human in three. Investigations in other parts give slightly different percentages, but the matter is being investigated at present in different localities for comparison with these results.

We have thus seen that the tonsil is readily infected with either form of tubercle bacilli, investigations showing that the bovine type is most frequently present in children (Table VI.).

TABLE VI.—*Examination of Tuberculous Glands to Determine Type of Tubercle Bacillus.*

Name.	Number.	Human.	Bovine.
Lewis	15	6	9
Litterer...	11	5	6
Burckhardt...	9	8	1
Weber	5	—	5
Park and Krumweide	54	34	20
Oehlecker	14	10	4
German Imperial Health Board...	3	1	2
British Tuberculosis Commission	9	6	3
Mitchell	72	7	65
Total	192	77 (40%)	115 (60%)

Although primary tuberculosis of the tonsil is not uncommon, it is unlikely to be the only lesion present. This infection of the tonsil has to be detected largely by its secondary effects on the lymphatic glands, as locally it rarely gives rise to symptoms. The treatment can be readily suggested from the previously mentioned facts. To prevent individual infection with the bovine bacillus at the present time it is essential that all cows' milk should be sterilised or should be obtained from healthy cows, those tested and found to be free from tuberculosis. The development of social legislation enforcing a pure milk-supply, which is urgently needed and which is gradually being met, will obviate the necessity for boiling milk. The potency of this mode of infection can be realised by the experiments of Delépine, who has found that one part of milk is capable of infecting 100,000 parts in sufficient degree to produce tuberculosis in guinea-pigs, so that it may be argued that the milk from a single cow with a tuberculous udder is capable of infecting the milk from a whole herd.

The preventive measures against human infection are being gradually adopted at present—namely, by isolating as far as possible the advanced cases of phthisis and the education of these people in the proper care of their sputum. When the lesion is suspected or manifest in the individual the treatment is to remove the tonsils entire in their capsule. The usual indication for this is tuberculosis of the tonsillar cervical glands. The tonsil as the focus should be removed as early as possible, except where softening or abscess formation in the glands demands that they should be dealt with first.

(To be concluded.)

SOMERSET INSURANCE COMMITTEE.—At the last meeting of the Somerset County Insurance Committee it was reported that 31 medical men in the county were on active service, and of these 26 were "on the panel." The chairman (MR. J. C. Morland) stated it was quite probable that more medical men would be called away, and there might be difficulty in getting the usual prompt attention in some districts, but under the circumstances he was sure that insured persons would give every consideration for these difficulties, and he was also certain that they could rely upon the doctors left in the county to do their utmost to carry on as full and efficient a medical service as possible.

A CASE OF

PERITHELIOMA OF THE SUPERIOR MAXILLA AND ETHMOID.

BY G. H. LAWSON WHALE, M.D. CANTAB., F.R.C.S. ENG.,

SURGEON FOR DISEASES OF THE THROAT, NOSE, AND EAR TO THE HAMPSTEAD GENERAL HOSPITAL, AND TO THE LONDON TEMPERANCE HOSPITAL.

THE patient, a female Belgian refugee, aged 52 years, came to the Hampstead General Hospital in September, 1914, with a lump in the right cheek of three and a half years' duration. The whole right upper jaw bulged outwards, pushing the nose over towards the left. There was no depression of the palate; the temporal fossa and post-nasal space were free. The right eye was proptosed, but vision was perfect; the outer wall of the right nasal fossa was pushed inwards against the septum. Examination by transillumination and puncture revealed a solid tumour. There were no palpable glands.

Under chloroform I incised the friable outer antral wall beneath the cheek, my intention being to remove a piece for histological diagnosis. But the bulk of the tumour came away so easily that I removed all I could, a mass larger than a golf-ball. (Fig. 1.) It was, however, impossible by this route to get any instrument or finger beyond the upper pole of the tumour, so it was obvious that,

FIG. 1.

The mass of growth which was removed by elevating the cheek at the first exploratory operation. About two-thirds actual size.

for a cure, this proceeding had been unsurgical and insufficient. An extract from the pathologist's report says:—

Richly cellular, irregularly circular areas present internally a roughly circular space filled with blood corpuscles. Bounding the space externally, and the cellular area internally, is a layer of flattened cells, suggesting the internal lining epithelium of a vessel. External to this are many closely packed ovoid cells, with a well-defined nucleus, arranged concentrically around the lumen. These appearances suggest a perithelioma originating in the small blood-vessels. (Fig. 2.)

A week after exploring the antrum I went to France, and so lost sight of the patient; on my return in January, 1915, I again saw her. The mass had not recurred in the outer antral wall, from where I had formerly removed the large piece, but the palate was slightly depressed on that side; the eye more proptosed and pushed outwards; the nose further displaced to the left; and a large, irregular, hard prominence extended from the middle of the cheek, upwards and inwards, crossing the inner canthus to reach the nasion. (Fig. 3.) A skiagram taken by Mr. C. Thatcher shows that the lower part of the antrum and the frontal sinuses were apparently free, but a shadow occupied the upper part of the jaw, side of the nose, and ethmoid region.

FIG. 2.

Microphotograph showing section of perithelioma of the right antrum and superior maxilla. Magnification 200 diameters.

Operation.—Ten days after the extraction of all the teeth, except those in the affected upper jaw, intratracheal ether was given by Mr. C. H. C. Visick. Dr. J. Z. Truter assisted. No preliminary tracheotomy or laryngotomy was performed, but the right external carotid was tied. An incision was then made, beginning in the middle of the eyebrow, in the line of which it was continued mesially to the root of the nose; then downwards in front of the lacrymal sac, and back to the sulcus between the nose and cheek; from here down to the junction of the nostril and cheek, horizontally inwards to the columella, and vertically downwards, dividing the lip in the mid-line. From a point in the first incision just below the lacrymal sac another curved horizontal incision was made in the line of the bony infra-orbital margin on to the malar prominence. These incisions are simply the classical one of Fergusson plus a prolongation half-way along the eyebrow. The usual large flap could now be turned down to expose the maxilla; and the skin over the root of the nose and inner half of the eyebrow could be raised upwards and to the left, for the better inspection of the ethmoid and frontal sinuses. The whole right upper jaw, palate bone, nasal bone, and part of the malar were now

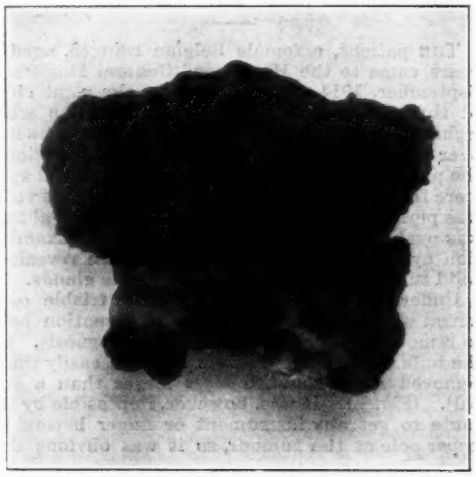
removed in one mass. (Fig. 4.) For cutting through the malar bone into the spheno-maxillary fissure a Gigli saw was used; for dividing the hard palate a keyhole saw. Elsewhere all separations were effected with a knife or bone-cutting forceps. It was not possible to leave the orbital floor or periosteum, as both were invaded. The "suspensory ligament" of the globe was not encountered—the eye rested on nothing but the orbital fat. The growth had invaded the right ethmoid, which, with the lacrymal bone, was now entirely removed up to the cribriform plate. The sphenoidal sinus and spheno-maxillary fossa were found to be free from disease. The attachment of the superior oblique pulley was not interfered with, and the soft palate was left. The cavity was swabbed everywhere with solution of zinc chloride, 40 grains to the ounce. The skin flaps were replaced and sewn up, and for 48 hours the cavity was kept plugged with wide ribbon gauze.

Subsequent history.—Never at any time did the temperature exceed 99·8° F. nor the respirations 24. On the third day a marked conjunctival chemosis appeared. This was attributed to the great

FIG. 3.

Appearance of the patient four months after first and shortly before second operation.

FIG. 4.



The upper jaw and adjacent bones removed at the second radical operation. The growth has rendered the identity of this unrecognisable, were it not for the teeth. About two thirds actual size.

FIG. 5.

Patient after operation. Shows the ptosis and inability to raise the eyebrow on the affected side.

FIG. 6.

Shows how the globe has dropped, but there is no diplopia.

mechanical circulatory and lymphatic interference; and a leech on the upper eyelid cured it. But on the fifth day it reappeared, and simultaneously a brawny semi-fluctuating swelling was found over the right cheek, just in front of the ear. Incision evacuated from this an ounce of the foulest pus I have ever smelt; all the while the temperature, &c., remained normal. The chemosis now gradually disappeared. As the union of the incisions became complete, and before removal of the stitches, the skin for an area of 1 in. by ½ in., at the apex of the flap, just below the inner canthus, sloughed. Whether or not a plastic operation be undertaken later to close this opening, it has meanwhile provided a most convenient route through which to irrigate the upper part of the cavity. The eyebrow incision divided part of the origin of the levator palpebræ superioris and anterior belly of the occipito-frontalis muscles. Hence there are partial ptosis and inability to raise the eyebrow on that side. (Fig. 5.) An obturator with dental plate is being made under the direction of Mr. J. F. Colyer.

A curious feature of the case is that, although the eyeball has dropped a little, there is perfect vision with either eye separately (proving that both eyes are used), and no diplopia when using both eyes (Fig. 6); presumably an unconscious overaction of the intact extrinsic muscles compensates for the displacement of the globe. The photographs, which are published with the patient's consent, were kindly taken by Mr. J. W. Harrison; and the micro-photograph (Fig. 2) by Mr. A. Cornell, of Tonbridge, with the super-microscope, without an enlarging camera, the invention of Mr. F. Davidson, 29, Great Portland-street, London, W.

Harley-street, W.

SPINAL ANÆSTHESIA IN 43 SUPRAPUBIC PROSTATECTOMIES.

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I HAVE found spinal anæsthesia of great assistance in many genito-urinary operations, such as malignant disease of the bladder, lithotomy, some cases of lithotrity, extensive perineal fistulæ, &c., but in this paper I have only included suprapubic prostatectomy. A report on this one particular operation—performed, as it always is, on men who are all of advanced or great age, and in many instances suffering at the time of operation from the same kind of constitutional complications—is of a greater value for the comparison of spinal with general anæsthesia than if different operations, ages, conditions, and diseases had been included.

The victim of enlargement of the prostate gland is not only frequently of great age, but often presents evidence of organic degeneration, such as inadequately acting renal tissue, degeneration of the vascular system, emphysema, and bronchitis. The question of anæsthesia may therefore present a serious problem both as to the immediate result and ultimate recovery.

The commonest causes of death following suprapubic prostatectomy are shock and hæmorrhage, suppression of urine, pulmonary complications, and paralytic distension of the bowel.

From my experience in the administration of both general and spinal anæsthesia for this and many other kinds of operations I have come to the following conclusions. General anæsthesia administered for prostatectomy, which during the enucleation of the gland must be deep enough to relax the abdominal muscles, does not prevent shock. It tends rather to increase the amount of hæmorrhage if ether be the drug employed, and the risk of the supervention of urinary and intestinal complications: possibly it tends to increase pre-existing pulmonary troubles. Successful spinal anæsthesia, however, practically prevents shock, and even in cases where the spinal block is not perfect the operative shock is greatly diminished. The risk of the supervention of suppression of urine is smaller. This is principally due to the fact that the patient can be given fluids and stimulants by the mouth much sooner than after general anæsthesia, and partly to the absence of the effect of the general anæsthetic drug on the cellular tissues of the body. Any pre-existing pulmonary troubles are less likely to be increased. I may also add, as I cannot give an opinion on the subject myself, that a surgeon, who has used both general and spinal anæsthesia in a large number of prostatectomies, tells me that though distension of the bowel may occur after either, he considers it occurs less frequently after spinal anæsthesia.

The mental shock which some patients experience, due to being conscious during the operation, is, I am sure, a matter to be seriously considered. Fortunately this can be eliminated without practically losing any of the advantages claimed for spinal anæsthesia. Nitrous oxide and oxygen can be given during the operative interference, and in the absence of reflex stimulation this is comparatively easy. Personally I should always recommend the administration of these gases if the patient expressed a wish for unconsciousness or showed signs of nervousness.

The method I use is as follows. A previous subcutaneous injection of morphia or omnopon and atropine with or without scopolamine is given. I inject in the second lumbar space in the middle line with the patient lying on his side, using Barker's needles and his internal cannula. The drug used in all these cases was novocaine. In the first 21 cases I used a solution weighted with mannitol. I have given up using weighted solutions altogether. In the last 22 cases the unweighted 5 per cent solution with suprarenin borate, as made by the Saccharin Corporation, was used. The dose of this last solution for these cases varies from 2 to 2½ c.c. according to the age, size, and condition of the patient. Raising the buttocks slightly and flexing the thighs on the abdomen immediately after the patient is turned on to his back tend to raise the height of the anæsthesia even with unweighted solutions of novocaine or stovaine. The head is, of course, kept slightly raised at the same time.

The advantages I would claim for the use of the unweighted solution, instead of the solution purposely made heavier than the spinal fluid, are as follows. Temporary collapse is met with in a certain proportion of cases after intrathecal injection of any of the drugs used to produce spinal anæsthesia. Should this occur it can be treated by raising the patient's legs and lowering his head, and this is the most rapidly effectual treatment. With the use of this solution the foot of the bed can be raised on blocks immediately the patient has been put back there, and if he has to be carried up or down stairs after the operation this can be done with the head dependent.

In the cases reported here no failure to obtain muscular relaxation or analgesia occurred. Anæsthesia, though slow to appear in 3 cases, was perfect eventually in 41 cases out of the 43; in the 2 others there were muscular relaxation and analgesia of the bladder. 34 of the cases were operated on without any general anæsthesia. Nitrous oxide and oxygen were given to 4 cases for prevention of mental shock, the spinal anæsthesia being perfectly good. In 3 cases a little general anæsthesia was given during the skin incision, after which it was withdrawn and no more given. These 3 patients were completely conscious when the skin was being stitched up at the end of the operation. The skin was then completely insensitive; therefore they were cases in which the anæsthesia came on more slowly than usual. In 2 other cases a little general anæsthetic was given during the skin incision and stitching up only, none being given during the opening of the bladder or enucleation, muscular relaxation and bladder analgesia being present.

Personally I should advise anyone beginning to use this method to aim at getting anæsthesia with the minimum dose of the drug likely to produce it in the particular case, and to risk having to give a very little general anæsthetic to supplement it.

The ages of the patients in this series were—

1 case aged	94 years	Recovered.
1 ,, ,,	90 ,, ...	,,
4 cases over	80 ,, ...	All recovered.
14 ,, between	70 and 80 years... ...	,, ,,
20 ,, ,,	60 ,, 70 ,, ...	1 died.
3 ,, ,,	50 ,, 60 ,, ...	1 ,,

In a large majority of the cases I was asked by the surgeon to give spinal anæsthesia for special reasons, such as great age, vascular degenerations, low specific gravity of urine, emphysema, and bronchitis. Personally, therefore, I should claim this series, from the point of both surgeon and anæsthetist, as a test of average recovery to be rather an exacting than a favourable one. Of these 43 cases 41 recovered, the abdominal wound being healed and the urine passed naturally by the urethra. Two cases died.

1. Patient aged 65. At the time of operation he was suffering from uræmia. He recovered normally from his spinal paralysis and was no worse at the end of the operation than before, and remained no worse for two days, when vomiting and diarrhœa came on. The post-mortem record says: "Secretory tissues of kidneys practically non-existent."

2. Patient aged 53. He recovered normally from the spinal injection and operation. Did perfectly well for ten days, when an attack of acute lobar pneumonia (P.M.) came on and he died in a few days.

These two cases have no bearing on the question of anæsthesia. The first, as a rule, would have been a suprapubic drainage only and therefore not have got into statistics as to prostatectomy at all. The second was an accident occurring in a most favourable case for prostatectomy, and occurring too late after the operation to have anything to do with the question of anæsthesia, whether spinal or general. I have included them as I have here given all the cases in which I have used spinal anæsthesia for this operation.

There was no case of permanent sequela following the spinal injection. There are here 41 complete recoveries out of 43 cases. Taking into consideration the causes of death of the two cases that died, I would suggest that this is really a better average recovery than it appears.

I am particularly indebted to Mr. John Pardoe for being able to make this report, as the very large majority of the cases were his, including the patient aged 94, and I take this opportunity of thanking him for his help and encouragement. Neither of the two cases that died was his. My thanks are also due to members of the staff of Guy's and the West London Hospitals who have given me cases.

Welbeck-street, W.

A NOTE ON

TUBERCULIN ADMINISTRATION AND GRADUATED LABOUR.

BY EDGAR TAUNTON, M.B. LOND., F.R.C.S. ENG.,
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PATIENTS admitted to the Royal National Hospital, Ventnor, undergo the ordinary open-air sanatorium treatment with rest or systematically graded exercise according to the state of the case. A part of the accommodation of the hospital (about a fourth) is, however, set apart for prolonged treatment of selected cases by a course of graduated labour. After selection these patients are on probation for a period of not less than four weeks, and if that term is passed satisfactorily they are taken in as "workers" to the special working blocks, where they remain until they leave the hospital.

Tuberculin has been carefully administered in some of the most promising of these selected "workers" by the intensive method, either "B.E." or "T.R." Slight reactions were occasionally observed. In the rare cases of prolonged reaction the use of tuberculin was discontinued.

It has seemed desirable to the medical staff of the hospital that some definite opinion should be arrived at as to the value of tuberculin in such cases (*a*) in shortening the duration of treatment; (*b*) in increasing the ability to do work; (*c*) in improving the general nutrition; and (*d*) in ensuring better after-results. For this purpose an examination of the records of 300 patients who passed through the "working blocks" between April, 1912, and March, 1914, has been made and the after-histories of about 60 per cent. of these cases have been with some difficulty obtained.

The course of graduated labour is for convenience divided into five grades of work, but in practice there is no abrupt transition from grade to grade, and it might be more nearly accurate to speak of ten or more grades, the point to grasp being that it is not a rigid system but a flexible one, adaptable to the needs of individual cases under constant medical direction and supervision.

Disturbances of temperature are a matter of prime importance in any consideration of the progress and treatment of cases of pulmonary tuberculosis, and here they have to do with the following. 1. The primary selection of cases for the working blocks. 2. The result of the probation of selected cases. 3. The further selection of patients for tuberculin administration is determined by the absence of such disturbances. 4. Ability to do work and the rate of progress from grade to grade of work are in relation to their absence or occurrence. 5. The duration of treatment itself is very largely a question of the absence of such disturbances and of their extent and duration when they occur. They involve rest, the

cessation of work while they last, interruption of the course of graduated labour, and loss of time. The introduction, therefore, of a possible disturbing factor like tuberculin administration has to be justified by results or its employment is unwarranted.

Gain in weight if taken as an index, not as a measure, of improved nutrition is a sensitive and fairly reliable guide if considered along with other things such as the grade of work. As the observations are systematically taken their evidence is included.

After-results.—It can be stated without fear of contradiction that the object of treatment in sanatoriums is not so much for patients to be able to live in a sanatorium as that they should be able to live and work outside, and that the true estimate of results must have regard to these after-histories. It has also been suggested in the course of this inquiry that a true estimate of the value of tuberculin should be based upon these after-histories rather than upon the relatively short views of results by the time of leaving.

Analysis of cases.—Of 300 patients dealt with 71 were women workers and 229 men workers. Of the women 34, or 74 per cent., were given tuberculin, while of the men 44, or 19 per cent., had tuberculin.

Duration of treatment.—Women: (*a*) The average period of residence of the 34 women who had tuberculin was 202·4 days; (*b*) of the 37 women who had no tuberculin, 148·1 days; (*c*) the average increase in the duration of treatment required for tuberculin cases was 54·3 days, or an increased duration of treatment of 36·6 per cent.; and (*d*) in relation to the stadia of the disease the increased time required where tuberculin was used was as follows: Stadium I., 43·4 per cent.; Stadium II., 28 per cent.; and Stadium III., 33·8 per cent. Men: (*a*) The average period of residence of the 44 men who had tuberculin was 144·7 days; (*b*) of the 185 men who had no tuberculin, 125·2 days; (*c*) the average increase in time for tuberculin cases was 19·5 days, or an increased duration of treatment of 15·5 per cent.; and (*d*) in relation to the stadia of the disease, Stadium I. took 14·9 per cent., Stadium II. 22·4 per cent., and Stadium III. 11·7 per cent. longer treatment than those of the same stadia who had no tuberculin.

Ability to work.—The ability to do work has been estimated first according to the average grade of work reached while under treatment. This, however, required to be associated with the duration of treatment to give a true comparison. There is therefore also given a comparison of the average increase in grade of work per diem. Women: (*a*) The average grade of work reached by the 34 women who had tuberculin was 1·82, while that of the 37 women who had no tuberculin was 2·25, or 23 per cent. higher; and (*b*) the women who had no tuberculin showed in the average daily increase in grade of work the following percentage excess compared with those who had no tuberculin: Stadium I., 75 per cent.; Stadium II., 44 per cent.; and Stadium III., 61·2 per cent. Men: (*a*) The average grade of work reached by the 44 men who had tuberculin was 3·30, and that of the 185 who had none 3·61, or 9·39 per cent. higher; and (*b*) the men who had no tuberculin had daily excess increases in the grade of work in Stadium I. of 31 per cent., in Stadium II. of 27·1 per cent., and in Stadium III. of 29·1 per cent. compared with those of the same stadia who had tuberculin.

Gain in weight.—Here also the total average needs supplementing by data as to gain in weight in relation to duration of residence, and the mean daily gain is therefore given to enable a true estimate of progress to be made. Women: (*a*) Average gain in weight in 37 women without tuberculin, 11·9 lb.; in 34 women with tuberculin, 6·8 lb.; the increased gain without tuberculin thus equalling 5·1 lb., or 75 per cent. (*b*) Average daily gain without tuberculin in excess of those with it: Stadium I., 122·7 per cent.; Stadium II., 108·3 per cent.; and Stadium III., 100 per cent. Men: (*a*) Average gain in weight in 185 men without tuberculin, 13·5 lb.; in 44 men with tuberculin, 12·09 lb.; the increased gain without tuberculin being 1·4 lb., or 11·6 per cent. (*b*) Average daily gain without tuberculin in excess of those with it: Stadium I., 51·6 per cent.; Stadium II., 29·8 per cent.; and Stadium III,, 3·8 per cent.

After-results.—As the result of inquiries sent to all of the 300 patients whose cases are under consideration 189 returns were sent in—61·6 per cent. of the cases treated with tuberculin ("T." cases), and 63·2 per cent. of those treated without it ("N.T." cases). The deaths recorded were not markedly different in the "T." and in the "N.T." groups—viz., 8·3 per cent. for both in women, and 12·8 per cent. "N.T." men and 16 per cent. "T." men. The chief difference was in accordance with what might have been anticipated from the progress of these cases in the hospital. Among the "N.T." cases 79·1 per cent. of the women and 71·1 per cent. of the men were reported as "able to do their work," while of the "T." cases only 50 per cent. of the women and 56 per cent. of the men could do so. To put it another way, adding together the men and women, while of the "N.T." cases 26·9 per cent. were unfit for work or dead, of the "T." cases 46·9 per cent. were so conditioned. Upon dividing the cases into two groups—viz., those who left in the first, and those in the second half of the period—a similar difference in the after-histories in favour of those who had had no tuberculin was found in each of the groups taken separately.

Summary.—The answers which the medical staff of the hospital sought to elicit from a consideration of these cases are given for these cases, and, under the conditions mentioned, with sufficient clearness to enable a definite opinion to be formed: 1. The administration of tuberculin to selected phthisical workers does not shorten, but, on the contrary, it lengthens, the duration of treatment. 2. The use of tuberculin does not increase the ability to do work. It appears not only to delay the improvement in working ability, but it also diminishes the ultimate ability achieved by a more prolonged course of treatment. 3. So far as gain in weight and the rate of gain enable one to judge, the administration of tuberculin is detrimental to the nutrition of patients to whom it is given under these conditions. 4. The after-results in fitting patients to do their work after leaving the hospital in these cases are less favourable where tuberculin has been used than in the cases where it has not.

Tidworth.

CROWNHILL CONVALESCENT HOME, NEAR PLYMOUTH.—The annual meeting of the subscribers to this home was held recently under the presidency of Earl Morley. The medical report stated that during 1914 the patients admitted numbered 236. Lieutenant-Colonel A. B. Soltau, the honorary physician, being away on war service, the duties had been performed by Dr. E. Lawrence Fox. The financial statement was satisfactory.

REPORT ON A FEW CASES ILLUSTRATING THE REMOVAL OF FOREIGN BODIES ON THE X RAY TABLE.

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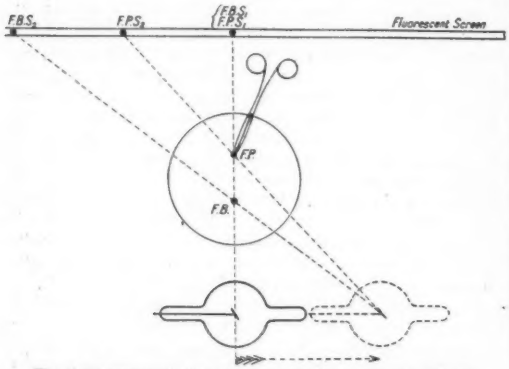
IN a recent article on this subject[1] the more routine adoption of a method of removing foreign bodies under the direct guidance of the X rays was advocated. A description in brief of the method employed at the Baltic and Corn Exchange Hospital, Calais, was then given, and it has occurred to us that an account of a few cases might add to the value of the communication.

For the benefit of those who have not given the subject of radiography special attention it may be well, as a preliminary, to recapitulate a few facts concerning the rough localisation of foreign bodies in situations not demanding precise and detailed measurements. In our recent article we have stated that it is possible to obtain much information during the course of a surgical operation performed upon the radioscopic table by a slight movement of the X ray tube. Let us suppose that a foreign body in the calf is to be removed. The object is first "centred." The incision is made directly over it, or as nearly so as is consistent with a safe approach. The skin, superficial fascia, and deep fascia are divided, and then the light is turned off and the X rays switched on. Guided by the screen, closed pressure forceps are pushed a little way into the tissues towards the foreign body. The tube is now moved to one side and the relative movements of the shadows cast respectively by the foreign body and the point of the forceps noted. Should the former seem to move farther than the latter then the forceps have to be pushed still deeper. The reason for this will be readily understood by reference to this simple and self-explanatory diagram. (Fig. 1.)

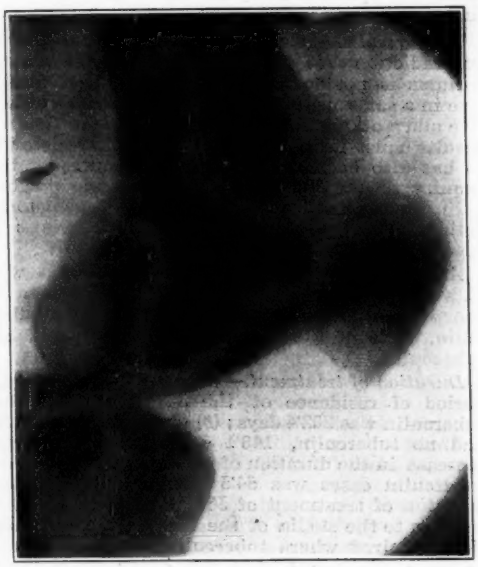
FIG. 1.



The circle represents the diagram of a limb, say, the calf of the leg, in section, in which F.B. represents the foreign body and F.P. the forceps point. Then F.B.S. and F.P.S. represent the shadows respectively of the foreign body and the forceps point on the fluorescent screen when the tube is situated vertically under the foreign body. When the tube is moved to one side in the direction of the arrow the corresponding shadows are represented by F.B.S.$_2$ and F.P.S.$_2$

In the removal of minute foreign bodies the greatest difficulty is sometimes experienced; and while, in many cases, these may be well left alone, yet it sometimes occurs that it is most advisable to remove them. Of this nature is the case that follows. (Fig. 2.) A private of the 2nd Chasseurs à pied was wounded at Dixmude on March 17th by a small piece of bullet mantle, probably from a ricochet. There was a punctiform wound in the outer side of the left thigh four inches above the patella. As the radiogram shows the sharp metallic

FIG. 2.



Showing a small foreign body in the sheath of the popliteal artery.

fragment which caused it had penetrated deep into the popliteal space. An incision was made in the line of the tendon of the semitendinosus, and dissection was carried on until the popliteal vessels were displayed. The dissection towards the fragment was guided by frequent screening; but, of course, none was done under the rays, except the final extraction of the minute projectile. The artery having been recognised by sight and being kept under the finger when the rays were switched on, a pair of closed forceps was introduced and gently pushed through soft tissue till the fragment was reached. The foreign body, which was sticking in the sheath of the popliteal artery, was then gently grasped and removed. There was no after-trouble.

The minuteness of the foreign body makes the case seem almost trifling, yet the consequence of the presence of such a sharp metallic fragment in the proximity of the artery might have been very serious.

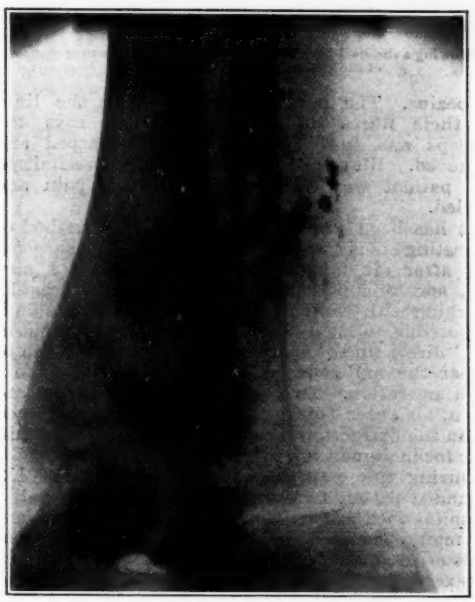
Again, minute foreign bodies may act as sequestra and prevent healing, as in the case illustrated in Fig. 3. The patient was a cyclist of the 1st Carabiniers and was wounded, eight days after the war began, at Warumme, near Liége. He was taken to the Red Cross Hospital there, and carried thence in the retreat, first to Louvain and then to Ghent, where he was operated upon; then to Ostend, to Duinbergen; then to England, to Hastings, where he was operated upon for the second time; then back to his depôt in France, whence, on March 19th, he was sent to us for

[1] THE LANCET, April 24th, 1915, p. 854.

his third operation. He had pain which incapacitated him in his left lower leg. The old operation scars ran vertically upwards from behind each of the malleoli. There was a dry sinus in that over the tibia. The operation consisted of incisions upwards in the lines of the old ones and removal of the metallic fragments under the X rays. One piece was found lying at the bottom of the sinus, and after it was extracted the sinus itself was carefully excised. Both wounds were sutured without drainage and healed by first intention, and the patient was discharged a fortnight after admission, cured.

The most difficult cases are those in which a foreign body lies embedded in muscular tissue without any intimate relation to bone. The region is, as it were, uncharted. Plates demonstrating such cases are at the Baltic Hospital rarely taken, as the projectiles are removed on the X ray table without any more ado; but our view as to the difficulty is supported by the number of such patients we have had sent to us showing large operation scars following a prolonged but fruitless search. By the direct method of operating the possibility of working along the wrong muscular plane is obviated and difficulties are reduced to a minimum.

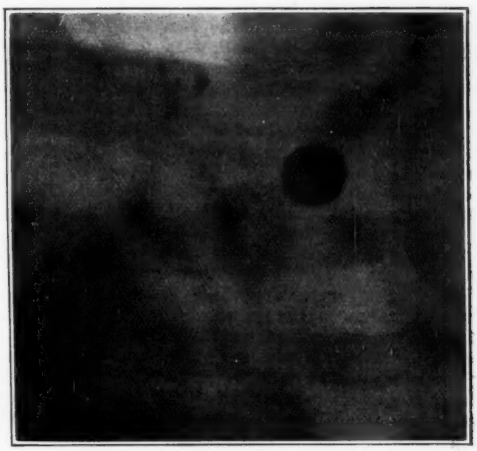
FIG. 3.



Showing a rifle bullet which has struck the fibula and exploded into minute fragments. (Longmore quotes Busch to the effect that rifle bullets on striking bone may "actually become melted and divided into numerous slug-like particles, and that this adds greatly to their destructive effects in wounds.")

A lame convalescent returned to hospital will serve as an example of the trouble caused by a bullet lying deep in muscles, even though the wound may have healed. He was wounded in the back on Oct. 22nd of last year and received treatment at two hospitals in England, but the bullet was not removed at either. On his return to the front he was unfit for duty owing to pain on walking. He also described a loss of sensation over the front of his left thigh. On account of these symptoms he was sent to us for extraction of the foreign body. A stereogram, not reproduced, showed a bullet pointing downwards lying deep in the muscles of the back on the left side in the angle between the iliac crest and the vertebral column. At the operation a small longitudinal incision was made at a somewhat higher level than the situation of the bullet. The reason for making it there was to allow of the base

FIG. 4.



Showing a shrapnel ball (embedded in callus) that had been lying for four months *in situ*—viz., between the third and fourth ribs and on the pleura. It caused pain and incapacity and was removed by operation under the X rays.

of the bullet being grasped. The tendon of the latissimus dorsi was cut in the line of the first incision and the fibres of the erector spinæ were exposed. Guided by the rays these were split with blunt forceps, and the bullet, which was lying deep in the muscle, was grasped and extracted. The whole operation, as is usual, was only a matter of a few minutes. The patient was discharged a few days later free from pain and healed.

The wide sphere of usefulness of "the direct method" is shown in the following three cases. In Fig. 4 a shrapnel ball is seen lying between the third and fourth ribs. The patient, who had been wounded four months previously at the battle of the Yser, was admitted here on Feb. 18th of this year. He complained of pain in movement of the right shoulder, but there was no shoulder lameness. There was a small scar in the posterior axillary fold about the level of the sixth rib. This had been the wound of entrance. The radiogram shows two things. One is the shrapnel ball between the ribs, four centimetres from the mid-line, and the other is that the fourth rib was broken and comminuted. Evidently the ball had passed slightly upwards through the axillary fold and between the scapula and ribs, grazing and breaking the fourth, and lodging in the space above it. Subsequently it was found that it had penetrated deeper, for it had passed forwards between the ribs and lay just on the pleura. At the operation, the arm being pulled up and out to get the scapula out of the way, a long vertical incision, four inches, was made through skin and fascia and also through the tendon of the trapezius. The subjacent muscles, the rhomboideus major and then the erector spinæ were split in the line of

their fibres and well retracted. Then under the rays the deep hole thus made was probed with pressure forceps and the point of the forceps could be placed upon the ball with ease. The ball could not be grasped, however, and on switching on ordinary light the point of the forceps was found to be on bone. On making quite sure of this by repeated screening it became evident that this bone must be callus[2] occupying the width of the interspace. Thereupon the callus was chiselled away and the leaden shrapnel ball revealed. To get it out it was necessary to chip away a little of the rib, both above and below. That done it was lifted from its bed with the utmost gentleness lest the pleura should be damaged. The wound was partly closed, but a drain was left in. Unfortunately convalescence was delayed by some degree of sepsis which commenced a week later; but on March 16th the patient was fit for discharge to England practically healed.

We had one case which specially showed the inefficiency of ordinary methods of localisation as aids to extraction. On screening the region of the hip foreign bodies were seen, a bullet and its mantle. The bullet was the darker shadow, lying anterior to the great sacro-sciatic ligament. During its passage from the wound of entrance, which was three inches below the great trochanter, the mantle of the bullet had been stripped off, and was seen as a fainter shadow behind the acetabulum. The bullet was therefore just inside the pelvis, whilst the mantle was left lying rolled up in the dense fibrous tissue behind the joint. The patient was wounded in December, and the bullet and mantle were not removed till he came under our care in March. We first saw him, however, a day or two after his wound had been received, for he was sent to us by a French hospital for radiographic examination. The position of the bullet was then marked on the skin and located at a depth of eight centimetres. Armed with this information and with a plate, the French surgeon, a most competent operator, made an incision four inches long in the line of the great sciatic nerve. He searched fruitlessly for the bullet, and the patient after 66 days in hospital returned to duty. Eighteen days later, on March 11th, he was sent back to hospital on account of pain in walking, and there was tenderness posteriorly over the neck of the femur. On the 13th he was operated on for the second time, on this occasion at the Baltic Hospital. A three-inch incision in the line of the great sciatic nerve, and then splitting of the gluteus maximus in the line of its fibres were the initial stages of the operation. Then the rays were switched on, and by blunt dissection the bullet located. It was levered up from its bed by an elevator pushed gently under its lower pole and removed by forceps. The mantle was extracted without difficulty. When the soldier left the hospital a week later his wound was healed and his pain had gone.

The minimum of damage is done to the tissues by "the direct method." Of this fact the case illustrated by Fig. 5 affords a striking example. The story is a simple one. The man was wounded in the neck at Antwerp on Sept. 11th, but did not come into our hands until March 7th. He had been to England in the interval and his wound had healed, but he still had pain in his neck, and was sent to us on that account. The scar was an inch to the left of the sixth cervical spine. The X rays showed a shrapnel ball lying between the transverse processes of the first and second dorsal vertebræ. A vertical incision was made over it through the skin and the aponeurosis of the trapezius. The muscles were split in the lines of their fibres and then under the rays the forceps was inserted and the ball grasped and removed. Eleven days after he had been admitted the patient was discharged free from pain and healed.

FIG. 5.

Showing a shrapnel bullet lying between the transverse processes of the first and second dorsal vertebræ.

It has been urged by some that this method of operating holds considerable danger for the surgeon, but after six months of operating by it I may say, speaking personally, I have had no trouble. Working with the smallest diaphragm available it is possible to keep the hands almost always out of the "direct line of fire." We take the precaution to smear the nail-beds with flexile collodion before each operation. Two pairs of rubber gloves are worn, an outer thick pair which can be removed when the extraction is completed, and an inner thin pair for more delicate work.

During the past six months upwards of 132 wounded patients have been admitted to the Baltic Hospital with projectiles still lodged in the tissues. In many wounded by artillery several shrapnel balls or fragments of shell casing were present. In all except four instances the foreign body has been removed, and in the great majority this has been accomplished by operating directly under the X rays.

In conclusion, I wish to acknowledge my indebtedness to Dr. L. J. Picton (St. John Ambulance), surgeon and registrar, for his help in compiling these cases. My thanks are due also to Dr. H. R. Ramsbotham, B.R.C.S., and Lieutenant A. E. Chisholm, R.A.M.C., for their permission to publish two of the cases which were respectively under their care.

Baltic and Corn Exchange Hospital, Calais.

[2] The callus being recent is evidenced by the merest cloud on the skiagram.

BRISTOL INSURANCE COMMITTEE.—This committee reports that in Bristol there are 133,578 members of Approved Societies and 2056 deposit contributors.

THE CHEMISTRY OF RICE-POLISHINGS.

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AND
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IN 1911 we published evidence that beri-beri in Malaya is caused by the consumption of polished rice as the staple of diet, and that the substance or substances in rice-polishings and in unpolished rice which prevent the disease are soluble in alcohol and are decomposed by sodium hydrate. The experiments with sodium hydrate were referred to on page 74 of our report, but as one of the methods since employed by chemists who have sought to isolate the substance has involved the use of barium hydrate it is desirable that details of these experiments should now be given.

From a series of observations it was determined that fowls weighing from 1200 to 1400 grammes ordinarily consumed about 60 grammes of unpolished rice daily, and if fed on 60 grammes of polished rice they required in addition 5 grammes of polishings for the maintenance of weight and health. The polishings were passed into the crop once daily in the form of an emulsion in water.

In our experiments polishings were extracted twice with six times their volume of 0·3 per cent. hydrochloric acid. The polishings after extraction were tested and found valueless. Alcohol was added to the extract so as to bring the mixture up to the strength of proof spirit. The precipitate, which consisted of phytin, was rejected. The filtrate was nearly neutralised, concentrated at a low temperature, and its volume so adjusted that 30 c.c. contained the material soluble in proof spirit from 5 grammes of polishings.

Eighteen fowls were fed on polished rice and received once daily 30 c.c. of this solution. Their health was unimpaired, as is shown by Table I., which gives the weights in grammes of the first six fowls.

TABLE I.

Date.	1	2	3	4	5	6
7-8-10 ...	2095	1265	1550	900	1410	1105
11-8-10 ...	2140	1280	1695	850	1430	1160
18-8-10 ...	2100	1380	1655	905	1425	1075
25-8-10 ...	2060	1275	1625	915	1445	1070
1-9-10 ...	2050	1265	1660	935	1460	1100

Another lot of polishings was extracted in the same way and alcohol added to the extract as before. To the proof-spirit filtrate sodium hydrate was added so as to make a solution containing 0·3 per cent. of that substance. The precipitate was collected, and the amount of it obtained from 5 grammes of polishings was given once daily to each of six fowls fed on polished rice. The results of this experiment during 12 days are shown in Table II.

TABLE II.

Date.	1	2	3	4	5	6
5-9-10 ...	1440	1615	1575	1565	1195	1385
12-9-10 ...	1340	1595	1340	1565	1255	1325
17-9-10 ...	1265	1555	1335	1400	1215	1305

The filtrate was neutralised and evaporated at a low temperature until free from alcohol. The volume of the solution was then adjusted, so that 30 c.c. represented the non-alkali precipitable material from 5 grammes of polishings. Each of six fowls on polished rice received 30 c.c. of this solution once daily. The results of this experiment during 12 days are shown in Table III.

TABLE III.

Date.	1	2	3	4	5	6
5-9-10 ...	1520	1620	1555	1565	1260	1410
12-9-10 ...	1450	1505	1320	1470	1250	1490
17-9-10 ...	1405	1420	1180	1380	1200	1410

The fowls in neither of these two groups did well and most of them lost weight rapidly. On further examination it was found that 0·3 per cent. of sodium hydrate did not effect complete precipitation. From this it was inferred that the active substance was either separated into two parts or that it has been decomposed by the alkali.

It was found that by making the proof spirit alkaline to the extent of 0·5 per cent. sodium hydrate precipitation was complete. An experiment was then carried out in which fowls on polished rice received daily the alkaline precipitate obtained in this way from 5 grammes of polishings (Table IV.).

TABLE IV.

Date.	1	2	3	4	5	6
14-9-10 ...	1430	1145	1345	1030	1340	1595
20-9-10 ...	1320	1010	1290	960	1180	1360
27-9-10 ...	1255	915 P.	1170	845	1065	1275
29-9-10 ...	—	—	P.	—	—	P.
1-10-10 ...	—	—	—	—	P.	—

P. = polyneuritis.

It soon became apparent that the fowls were not doing well and the occurrence of polyneuritis ended the experiment. In view of the preceding results it was unnecessary to carry out an experiment with the alkaline filtrate. The inference from these experiments was that sodium hydrate in weak solution destroyed the active substance.

These experiments were not designed to test the destructive effect of alkali, but were attempts to isolate the active substance, and the results were surprising in that so weak an alkali should destroy a body which is not affected by boiling. Various other methods were tried without success.

Funk continued these researches, and in 1912 announced that he had isolated an organic base which he called "vitamine" and to which he attributed curative properties. He extracted polishings with acidulated alcohol and then removed the alcohol by concentration *in vacuo*. The residue was mixed with water and freed from fat. It was then acidulated with sulphuric acid and excess of phospho-tungstic acid added. The precipitate was removed and the filtrate, freed from phospho-tungstic acid, was found to be ineffective. He then mixed the precipitate with barium hydrate and removed the barium phospho-tungstate. The filtrate, he stated, contained ammonia and smelt of methylamine. This suggested to us, in view of our experience, that he had decomposed the active substance. The further treatment to which he subjected the odoriferous filtrate strengthened that view, and we were unable to reconcile his results with our own. From subsequent publications it is learned that he became less certain of the soundness of his results, and in 1913 he stated that two substances were necessary to effect a cure; but a paper which has just been published by Drummond and Funk confirms our findings, for they state that "we have ourselves failed to isolate the curative substance which occurs in rice polishings. It is apparently decomposed during the

fractionation and all trace of it is lost." Through the complicated processes to which the extract was subjected by them it is unnecessary for us to go, save to express the belief that the decomposition was, in part at least and perhaps entirely, due to the use of baryta.

The existence of "vitamine" in the sense that Funk employed that word is therefore disproven. The word itself is not objected to and may be applied to the substance when it is isolated, but the premature publication of results which, on the findings of the writer himself, are subsequently shown to be erroneous creates confusion and retards progress. At the present day the problem is no nearer solution than it was four years ago, nor is progress likely to be made until improvements are effected in the methods employed by chemists in this work; those now employed are crude and imperfect.

Bibliography.—Fraser, H., and Stanton, A. T.: Studies from the Institute for Medical Research, No. 12, 1911. Funk, C.: Journal of Physiology, vol. xliii., p. 395, 1911. Ibid, vol. xlvi., p. 173, 1913. Drummond, J. C., and Funk, C.: Biochemical Journal, vol. viii., p. 598, 1914.

Kuala Lumpur.

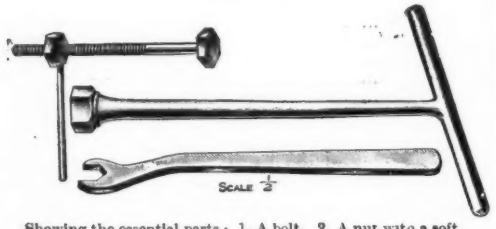
A BOLT FOR THE TREATMENT OF FRACTURES.

BY CUTHBERT WALLACE, M.B., B.S. LOND., F.R.C.S. ENG.,

SURGEON, ST. THOMAS'S HOSPITAL; JOINT LECTURER ON SURGERY IN THE MEDICAL SCHOOL.

THE plating of a long oblique fracture presents some difficulties. To ensure complete fixation two plates are required, one on either side of the bone at the opposite ends of the fracture. Even if only one plate is used the shaft of the bone beyond the end of the fracture must be exposed to allow the application of the plate. Some years ago I devised a bolt (Fig. 1) for the treatment of long oblique fractures and have found it useful in fractures which are only slightly oblique.

FIG. 1.



Showing the essential parts: 1. A bolt. 2. A nut with a soft wire brazed to one facet. 3. A flat spanner. 4. A clock-key spanner.

FIG. 2.

Shows a fracture before bolting.

The mode of application is as follows: The fracture is reduced. A hole is then bored through the centre point of the fracture with a Morse drill. The axis of the hole should be at right angles to the axis of the bone. If the fracture is not very oblique it is best to set the bolt somewhere near a right angle to the fracture. The hole should allow the bolt to pass easily. The bolt is pushed through till the end just emerges on the opposite side. (Figs. 2 and 3.) The nut is then taken up by the wire and held so that the bolt can engage when turned by the clock-key spanner. The bolt is then screwed home, rotation of the nut being prevented by traction on the wire. Very little force is necessary to bring about complete fixation of the fracture. When this is accomplished the protruding end of the bolt is cut off by a pair of screw-cutting forceps. The wire is then bent round the bone to the head of the bolt and the redundant part cut off. The object of leaving the wire *in situ* is that the nut can easily be withdrawn if it is necessary to remove the bolt when union has occurred. If the bolt passes obliquely to the axis of the bone-shaft the head can easily be housed by cutting away some of the shaft.

FIG. 3.

Same as Fig. 2, after bolting.

Upper Wimpole-street, W.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

SHELL WOUND OF THE LEFT SHOULDER; EXTRACTION OF FRAGMENT FROM THE NECK.

BY J. B. HAYCRAFT, M.B. EDIN.,
LIEUTENANT, R.A.M.C. (TEMPORARY).

A PRIVATE of the Guards was admitted on Nov. 3rd, 1914, with a shell wound on the back of the left shoulder, which he had received three days previously. The wound, which was oval in shape, with jagged edges, and about the size of a five-shilling-piece, was situated almost exactly over the back of the joint. The exposed muscle and fascia were greenish-black in colour, and there exuded a lot of brown-coloured foul-smelling fluid, together with bubbles of gas and broken-down blood clot. The shoulder, back, and left side of the neck were greatly swollen, and the skin over a wide area was discoloured, being of a bluish colour close to the wound, fading away to a yellowish-brown with an apparently raised edge. The head was held rigid, any movement of the neck causing severe pain. There was a great deal of dyspnœa, the patient having to be propped up in bed, and he could only swallow liquid food with difficulty. He had a high temperature and sweated profusely, showing signs of septic absorption. The wound was probed, but

"Time train" of a German shell, exact size, extracted from shell wound.

nothing was detected, neither could anything be felt on palpation of the neck or back. Owing to the valvular nature of the wound the finger could not be inserted for any distance.

Nov. 7th: The wound had been syringed out twice daily with hydrogen peroxide, and the patient's general condition was much improved. Œdema and discolouration were less marked, and breathing was much easier though there was still considerable difficulty in swallowing. A localised swelling was now apparent in the left supraclavicular space; it was slightly red, extremely tender, and on percussion yielded a resonant note.

Under chloroform an incision about 2½ inches in length was made over the swelling in the posterior triangle of the neck. Its direction was diagonal from above downwards and inwards. On dividing the deep fascia some gas and foul-smelling fluid escaped, and on exploring with the finger a large cavity was found in which a foreign body could be felt at a considerable depth from the surface. The incision, being too small to permit of its extraction, was enlarged, the external jugular vein being divided between forceps and ligatured. The body removed proved to be the circular movable "time train" of a German shell. It is situated just behind the apex of the shell, and can be moved round regulating the time at which the shell will explode after being fired. It weighed 6¼ oz. and was lying in a slanting direction pressed up against the great vessels, œsophagus, and prevertebral muscles. A drainage-tube and gauze packing were introduced.

Nov. 8th to 16th.—The wounds were syringed through twice daily with hydrogen peroxide and sloughs removed. The swelling and discolouration gradually disappeared and all difficulty in breathing and swallowing was relieved. The patient was discharged on Nov. 16th, the wounds being practically clean.

The points of interest in the case are: (1) The small size of the entrance wound compared with the diameter of the piece of shell; (2) the presence of so large a foreign body in the neck which could not be detected by palpation; and (3) its close proximity to several vital structures without proving fatal. The illustration represents the actual size of the object.

A CASE OF INTESTINAL OBSTRUCTION DUE TO A GALL-STONE,

IN THE COURSE OF WHICH NUMEROUS GALL-STONES WERE VOMITED.

BY A. R. NELIGAN, M.D. LOND., M.R.C.S., D.T.M. & H. CANTAB.,
PHYSICIAN TO THE BRITISH LEGATION, TEHRAN.

CASES of intestinal obstruction due to gall-stones are recorded in medical journals fairly frequently, but the vomiting of gall-stones must be, I think, an event of some rarity. However that may be, my small library makes no mention of it, and so I venture to describe the first case of which I have heard.

The patient, an enormously fat Russian woman, 55 years of age, and of alcoholic habits, was seen early on August 14th, 1914, for diarrhœa, vomiting, and abdominal pain. These symptoms had come on during the night, and were ascribed to a surfeit of grapes on the previous day. There seemed to be no doubt of this, for, before I left the house, she vomited a quantity of grape-pips and skins, a fact which moreover suggested that her stomach was dilated. A large drink of warm alkaline water was prescribed in order to wash out the stomach, to be followed by calomel in fractional doses. In the evening I was called to see the patient again. The diarrhœa had stopped before midday—in fact, no flatus had been passed since that hour; the vomiting was as bad as ever and the vomit consisted of bile and mucus. The pain was coming on in severe paroxysms; it was felt all over the abdomen, but was particularly severe in the right hypochondrium. The abdomen was more distended than in the morning; nothing definite could be felt in it or per rectum.

A fact in the patient's previous history now assumed importance—namely, that some six months before I had seen her in consultation on account of prolonged fever and obstinate constipation. She had then an enlarged and tender liver; continuous with the lower border of the right lobe and extending to the navel was a large tender mass. There was a leucocytosis of 25,000. The diagnosis lay between abscess of the liver and cholecystitis. An operation was recommended, but was refused. The patient slowly recovered and the tumour disappeared as I was afterwards told.

From her present symptoms I therefore came to the conclusion that she was suffering from biliary colic with reflex paralysis of the bowel. The usual remedies were ordered as well as large enemata. During the next day the vomiting continued and the vomited matter took on a fæcal odour; the pain increased, the abdomen became greatly distended, the pulse weaker and more rapid. The bowels had not acted in the night, nor had flatus been passed. While I was in the room that morning the patient vomited into a metal vessel, and I was attracted by a sound which suggested that a charge of buck-shot had been fired into it. On examination a number (about 30) of small faceted gall-stones were found, the largest of which was about the size of a dried pea. The patient said she had vomited a smaller number of similar stones some hours previously.

It was now evident that the woman had intestinal obstruction. Further, it seemed reasonable to suppose that no other cause having been found, the obstruction was due to a gall-stone which had escaped from the biliary passages into the bowel. As she was obviously going down hill I advised that laparotomy should be done. This was refused by her medical attendant on the ground that she ought to have had an operation six months before, but had got well without one. This seemed rather curious reasoning at the time, but later events justified it.

On the morning of August 16th the patient was still weaker. A variety of enemata had been tried without result, but a little flatus had been passed. The abdomen was still more distended. That evening I was called to see her again. I found her looking better and wearing an almost triumphant smile. Apparently she had felt very ill during the afternoon and had asked her master to give her some champagne. He had sent her a bottle. She drank a glass and felt better and had a strong desire to go to stool. She passed flatus, liquid fæces, and something hard which made such a noise in the utensil that "she and everyone else were frightened." This turned out to be a gall-stone. Unfortunately, the family's curiosity had been too much for them and the stone had been broken with a hammer. What was left showed that it must have been roughly round in shape and three centimetres in diameter; it must have weighed about 16 grammes. There was one large facet. The stone consisted of cholesterol with an external coating of phosphates 1 millimetre thick.

The patient made a good recovery, and her abdomen shows no signs of the stormy events which had taken place inside it. She has now been quite well for three years; this in spite of the fact that she looks upon champagne as a sovereign remedy and does not at all approve of the Russian campaign against vodka. Surely Nature has never made a more determined or a more successful effort to get rid of gall-stones.

Tehran.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF PATHOLOGY.

Tyrosine as an Aid in the Demonstration of the de novo Origin of Living Organisms.—Aneurysm of the Left Ventricle.—Arc Light Method of Isolating Typhoid Organisms, and Agglutination Method.

A MEETING of this section was held on May 4th, Dr. F. W. ANDREWES, the President, being in the chair.

Dr. H. CHARLTON BASTIAN read a paper on the Importance of Tyrosine as an Aid in the Demonstration of the Present-day *de novo* Origin of Living Organisms. He said that the incredulity with which the results of experiments showing the occurrence of "spontaneous generation," called by him "archebiosis," had been received had given rise to attempts to explain them away by one or other of three suppositions: (1) that the bodies found were mere simulacra or pseudo-organisms; (2) that the organisms found were dead, and having pre-existed in the experimental solutions were killed by the sterilising process; and (3) that the alleged organisms had not really been taken from the tubes but had come from an impure pipette, or dropped from the atmosphere on to the microscope slide before the cover-glass had been applied. He adduced evidence to show that the last view was untenable. To dispose of objections (1) and (2), tyrosine had proved valuable since the use of a small quantity of a very dilute solution of this substance caused the living organisms that might be present to grow and multiply freely. Its effect was noted on the contents of tubes which were fairly ripe for examination—i.e., seven to nine months after sterilisation. From each tube that was opened a sample of the deposit was taken with a well-sterilised pipette, and then with another pipette about 20 drops of the sterilised tyrosine solution were added. The tube was then securely closed and again placed in the incubator or exposed to light. After three or four weeks each tube was opened again and another sample of its deposit was withdrawn, stained, and compared with the earlier sample. All of about 40 of these tubes that had been examined had shown a very remarkable increase in the number and size of the organisms. The unmistakable growth and multiplication of the organisms effectually negatived the suppositions that they were either simulacra or dead. When tyrosine was added to new tubes, however, every one remained sterile, which seemed to indicate some harmful effect of the tyrosine on the solutions. This result, though unexpected, told strongly against supposition (3).

Dr. R. HINGSTON FOX exhibited a specimen of Aneurysm of the Left Ventricle. The aneurysm projected from the apex of the heart and was about as large as a cricket ball. Over it the pericardium was adherent. The aortic valve showed sclerotic changes and a coronary artery some thickening of its walls. Both kidneys were enlarged, adherent to the perinephric fat, and contained calculi, one as large as a walnut. Some of the distended loculi contained pus, and one a yellow substance, of amber hue, which could be cut easily with the knife. No changes attributable to syphilis were found elsewhere in the body.

Professor G. DREYER and Dr. E. W. AINLEY WALKER demonstrated the Arc Light Method of Isolating Typhoid Organisms devised by the former.[1] Professor Dreyer said that the results of light on micro-organisms had been much confused with those of heat. Speaking of the powers of different parts of the spectrum, in this respect, he said that a great effect was caused by the ultra-red rays, but the maximum effect was shown by the ultra-violet. The intervening parts of the spectrum were less effective, gradually strengthening from red to the first part of the ultra-violet, but weakening somewhat at the violet. The effect of light on micro-organisms could be studied in detail by using clear glass, blue glass, quartz, or a solution of potassium bichromate. It was possible by means of selected light to isolate micro-organisms, even when this was impossible by ordinary bacteriological methods. Speaking of the application of the method to typhoid fever, he said

[1] THE LANCET, March 27th, 1915, p. 646.

that an emulsion of a large mass of fæces could be used, which was advantageous. Four drops of good size were then dropped on to a gelatine plate by a Pasteur pipette and rubbed well over its surface until almost dry. The middle part of the plate was then exposed to the light, the lateral parts acting as controls. With successive exposures of a few seconds more and more of the surface in sections was protected from the light, so that different parts of the plate were exposed for different periods. The electrode could be of iron, aluminium, platinum, gold, or silver, the last being preferable as far as had been found at present. This electrode closely apposed a hollow tube containing a smaller hollow tube. Cold water flowed in through the inner tube, impinged on the electrode, and flowed out through the outer tube. In this way a perfectly cold light was assured and fusing of the electrode safeguarded.

Professor DREYER also demonstrated shortly the agglutination method which is associated with his name.[2] By it the temperature was kept constantly at 55° C., the culture was one of dead organisms, and consequently constant also. The advantages he claimed for it were that co-agglutination did not occur, that the end point of reaction was reached practically at the end of half an hour, and that a constant temperature and emulsion of organisms being employed the agglutinating powers of sera could be strictly comparable.

Dr. AINLEY WALKER said that the advantages of the arc light method were its rapidity, the large amount of material which could be examined, and the avoidance of the gradual dying out of organisms which occurred by using media. The agglutination method he considered to be certain and reliable, and an easy method of distinguishing an active case of typhoid fever from a case in which immunity had been attained. It allowed of a comparison being made between the agglutinating power of the patient's sera on succeeding days. The cultures could be used in very high dilution.

SECTION OF PSYCHIATRY.

The Thyroid Gland and Mental Disorder, with Especial Reference to Hypothyroidism.—Exhibition of Cases and Specimens.

A clinico-anatomical meeting of this section was held on April 28th at Claybury Asylum, by the courtesy of Dr. Robert Armstrong-Jones, under the presidency of Dr. F. W. MOTT, F.R.S.

Dr. M. KOJIMA read an interesting paper setting forth the results of examination of the thyroid gland in 110 cases of mental disorder, with especial reference to hypothyroidism. In this consecutive series all the ductless glands were carefully removed from the body, then freed from their surrounding tissue and weighed. The minimum average weight of the thyroid in the non-insane was 22 to 25 grm. In the average insane person the weight was much less—namely, about 16½ grm. in males and 16·87 grm. in females, but there was considerable variation in the weights among the insane, especially in females. He considered that all these cases exhibited hypothyroidism. The weights of the external parathyroid in 41 cases varied from 0·01 to 0·07 centigramme. In a third of the cases four glands were found. The weight of the pituitary body seemed to have no relation to the nutrition of the body or to the form and duration of the insanity. The adrenals of the male were heavier than in the female, and there was no relation of their weight to that of the body. No definite conclusion could be arrived at regarding the weight of the reproductive glands in the male and female in relation to body weight or mental disease, except that in congenital imbecility and dementia præcox the ductless glands were all below the average weight. The paper was illustrated by a number of microphotographs.

The PRESIDENT gave a microscopical demonstration of the changes in the nervous system in hypothyroidism. He discussed the changes he had found present in the nervous system in six cases of the condition. These chromolytic changes he first observed ten years ago in a case of myxœdema which was under his care at Charing Cross Hospital, as reported to the International Medical Congress at Lisbon, in a communication entitled "Cerebral Lesions in Relation to Psychoses of Toxic Origin." Mr. Arthur Edmunds, working in his laboratory, had found similar changes in dogs from which the thyroid gland had been removed. The changes in question were not specific of hypothyroidism; this metabolic change in the cells had been found in other conditions also. In the Proceedings of the Society in 1913 (Vol. VI.) he gave an account of the microscopical investigation of the nervous system in three cases of spontaneous myxœdema. In the case of a woman whom Dr. Armstrong-Jones had sent for him to see there was anæmia, but the only signs of hypothyroidism present were slight dryness and harshness of skin, a malar flush, and slowness of speech. She showed marked confusion. She died shortly afterwards, and he (Dr. Mott) examined the thyroid gland and nervous system. As the changes seen in her had been since found also in three other asylum cases, the faults which had been described by Dr. Kojima might be regarded as established, seeing that these had now been found in six cases. The thyroid showed only a few remnants of glandular structure amid the lymphoid structure, and a large excess of fibrous tissue. The autonomic centres in the medulla were more affected than were the other cells, but all the cells of the central nervous system and spinal ganglia, especially the small viscero-vascular cells, exhibited some chromolytic change. The processes were but indistinctly seen, and the nucleus was excentric. He specially wished to show the changes in the cortex, so as to correlate the mental symptoms with the changes in the cortical cells. These he demonstrated by a series of slides. A section from the cardio-inhibitory centre in a typical case of myxœdema showed a pericellular chromatolysis in all the cells. Similar changes were seen in the glosso-pharyngeal nucleus and the psychomotor cortex; the cortical pyramidal cells had lost their position, and instead of lying in columns with the apical processes pointing upwards, they were twisted from side to side. A superficial layer of the cortex, stained with Victorian blue, showed a network of glial cells and a superficial felting in the cortex, owing to the extreme glial proliferation. A low-power slide showed that the columns of Meynert, formed by the pyramidal cells and their processes, were too indistinct to be recognised, their places being partly taken by nuclei of proliferated glial cells. In these cases there had been a change which led to the disappearance of the substance known as the Nissl substance, which probably occurred on account of an alteration of the osmotic conditions of the cells, allowing water to pass in and swell the cell. If, as was supposed, this basophile substance was the kinetoplasm, this change constituted a physical reason for the slowness of speech and cerebration which these cases manifested. The President also showed slides of ganglion cells in the living stage, as viewed with the dark ground microscope; an enormous number of highly refractile granules were seen in the cell. The little granules of fluid were enclosed by a thin membrane which stained blue, and this formed the Nissl granules when death occurred. This change could be watched. His view was that these granules formed an enormous oxygen surface, because if they were stained blue and placed in an atmosphere of nitrogen in a warm chamber the colour disappeared; but on letting oxygen in the colour returned. It would be important to be able to prove that the Nissl substance was the energy substance, for in hypothyroidism there was a definite lack of that substance, and it would account for the loss of mental capacity and of alertness of response observed in these patients.

Dr. ARMSTRONG-JONES exhibited a number of cases of Hypothyroidism, a condition due to loss of function of the thyroid gland. He said that though Schiff described cases of this condition in 1859, Gull in the "sixties," Ord in 1880, Kocher in 1883, and Sir George Savage over 30 years ago in Tuke's "Dictionary of Psychological Medicine," where the association with insanity was indicated, it was through the special interest of Dr. Mott that the question was now raised in its bearing on insanity or mental disease, for he made the relation of the ductless glands (thyroid, suprarenal, pituitary, ovaries, and testicles) the subject of his address last year. Sir Victor Horsley had demonstrated the effect of removal of the thyroid. A committee of the Clinical Society of London also studied the question, and it was known that the condition cachexia strumipriva, allied in all respects to myxœdema, was induced in animals by removal of the thyroid gland, and that this could be prevented by transplanting the thyroid of an animal into the peritoneum. Sir William Osler had stated that the

[2] THE LANCET, Feb. 13th, 1915, p. 324.

thyroid became congested at puberty and during menstruation; also in women at the defloration period. Also, that the gland, or a lobe of it, became enlarged in conjunction with recent syphilis or secondary to infection. Baumann demonstrated that the nucleo-albumin of the gland contained a large percentage of iodine, and that it was present with protein matter within the vesicles of the thyroid; also that the gland manufactures some thyroantitoxin, and forms an internal secretion having the characteristics of an alkaloid. This substance had a profound physiological effect on the whole organism through the medium of the blood, for it acted as a hormone to other glands, while its absence was followed by physical and mental disturbance. On the physical side hyperthyroidism caused tremors, twitchings, tachycardia, headache, and prostration. Hypothyroidism caused an overgrowth of the subcutaneous tissue, the hands became unwieldy, the skin rough and harsh, and the hair disappeared or became sparse and wiry. On the mental side there was apathy, listlessness, and inactivity. Pawlow had shown how glandular secretions could be influenced by the emotions. In children absence of the thyroid produced sporadic cretinism and, possibly, idiocy of the Mongoloid type. In adults its absence eventuated in myxœdema. It was not by any means easy to recognise during life all cases of hypothyroidism, as some of the symptoms, such as tremor, seizures, and the mental reactions, were common to alcohol and general paralysis.

Dr. LENA BEACH exhibited and demonstrated a case of Disseminated Sclerosis.

Dr. SANO reported the result of his anatomical investigations regarding speech functions in a case in which there was a cyst of the left hemisphere, dating from birth or shortly afterwards. The lesion had destroyed the whole of the centrum ovale on the left side, but, notwithstanding that, the man had been able to earn his living as a clerk. The cortex remained, but practically the whole of the projection system was destroyed.

HARVEIAN SOCIETY OF LONDON.

Discussion on Cerebro-spinal Meningitis.

A MEETING of this society was held at the Stafford Rooms, Titchborne-street, W., on April 22nd, Dr. G. DE B. TURTLE, Vice-President, being in the chair.

In a few well-chosen words Dr. TURTLE expressed the great regret with which the news of the death of the President of the society, Dr. Edgar G. Bulleid, had been received, referring in terms of appreciation to the great services he had rendered to the society. A resolution embodying the latter sentiments was passed, and an expresion of sympathy was sent to the widow.

Dr. Turtle was then unanimously elected President for the remainder of the session.

Dr. F. E. BATTEN opened the discussion on Cerebro-spinal Meningitis with a paper which was published in THE LANCET last week (p. 964).

Dr. DAVID NABARRO gave a résumé of the history of the bacteriology of the disease from the discovery of the meningococcus by Weichselbaum in 1887 down to the latest work upon the subject during the recent epidemic. He then described the morphology and biology of the meningococcus, and gave an account of its occurrence in the human body. The changes in the chemistry and cytology of the cerebro-spinal fluid in meningococcal meningitis were described, and the alterations which are brought about by injections of serum. Finally, he showed a number of lantern slides of the meningococci in the cellular deposit of the cerebro-spinal fluid and in culture.

Dr. J. A. ARKWRIGHT dealt with the epidemiology of the disease. He divided the history of the epidemiology into three periods: (1) Before the discovery of the meningococcus; (2) the period commencing with the isolation and description of the diplococcus intracellularis in 1887; and (3) the period introduced by the discovery of the organism in the naso-pharynx of a patient and one carrier by Albrecht and Gohn in 1901. He then dealt with the large epidemics which have occurred since that date. The question of carriers was next considered. It had been shown by various observers that though the carriers were usually free from the meningococcus in two or three weeks a small percentage were still carriers after two or even seven months, and Mayer had related a case probably existing two years. Carriers might develop meningitis after two or three weeks, and no doubt all cases were carriers for a longer or shorter period. Subjects of meningitis must be looked upon as persons who in the course of a pharyngeal infection developed meningitis as a complication. The bacteriological examination of contacts was next referred to and the differential diagnosis between the meningococcus and other Gram-negative cocci found in the naso-pharynx discussed. Prophylaxis was then dealt with. The detention and isolation of carriers early in the epidemic whenever possible were advocated, with the avoidance of overcrowding and the breaking up of large bodies of troops into smaller units. The value of prophylactic vaccination was as yet uncertain. The morbidity, contagiousness, and seasonal variation were next discussed. The variation of the number of carriers among contacts in different epidemics was alluded to. Among 300 soldiers who were contacts Dr. Arkwright and his colleagues only found four carriers. In other epidemics as many as 23 and 32 per cent. had been found by various observers. In conclusion, he said that there were many points still requiring elucidation.

Dr. L. COLEBROOK spoke of the treatment of meningococcus infections by vaccines. He suggested that this procedure should not be considered as alternative to the intrathecal injection of serum, but rather as complementary to it. By the use of serum it was hoped to check the multiplication of meningococci in the cerebro-spinal fluid, and possibly to promote their destruction by phagocytosis, and it remained for the patient's own antibacterial defences to deal with the microbes which had established themselves in the meningeal and cortical tissues—the more serious factor in the infection. By the inoculation of vaccine into uninfected tissues it was sought to whip up these antibacterial defences to a maximal effort. Dr. Colebrook referred briefly to his experience of about a dozen cases—some of the "posterior basic," others of the epidemic type—of meningococcal meningitis, in which vaccine had been used. He had several times seen the temperature come down promptly and the patient's condition improve in a manner which strongly suggested that the inoculation of vaccine had exercised a favourable influence on the infection. But sometimes it seemed that very serious injury had been done to the central nervous system by the invasion of the cortex, blocking of the foramina, &c., in the days or weeks of the disease prior to the commencement of vaccine treatment, and in these cases, although the infection might be controlled, as evidenced by the temperature, the taking of food, and so on, yet full recovery was very slow or did not ultimately occur. It was, therefore, of great importance to exploit the vaccine very early in the disease, for choice on the second or third day. Probably nothing was to be hoped for in the fulminant cases which ran their course within 24 hours, as the patient's response to vaccine would not be affected within a few hours at least, possibly a day or two. It might even do harm to inoculate a patient so suddenly overwhelmed with his infection. In view of the marked difference to reaction towards immune sera displayed by meningococci of various origins, it would seem best to use an autogenous vaccine whenever possible, but during an epidemic it was certainly worth while to try the effect of a polyvalent stock vaccine. Such a vaccine had recently been prepared at St. Mary's Hospital from some 15 strains isolated in various parts of the country. In reference to dosage of the vaccine, Dr. Colebrook suggested that the foremost consideration was the avoidance of any congestive focal reaction, particularly in cases with marked cerebral symptoms. He had seen the best results with doses of from 2,000,000 to 5,000,000 cocci in young children and 7,500,000 to 20,000,000 in adults. Such small doses should be repeated every third or fourth day. Replying later to a question by Sir JOHN BROADBENT, he said he had recently used the stock vaccine above referred to for the prophylactic inoculation of persons exposed to the danger of meningococcal infection and of carriers. He had hoped that the vaccine might help to get rid of the microbe from the naso-pharynx of carriers, but this had not happened with any regularity. He had used doses up to 2,000,000,000 subcutaneously and 300,000,000 intravenously for these purposes. There was usually no general reaction except after the intravenous doses.

Mr. H. G. ARMSTRONG related his experience of an epidemic, commencing on Jan. 24th last, of cases of an indefinite febrile nature characterised by œdematous throats, cough of a laryngeal type, little or no expectoration, and slow pulse. Ninety-four cases occurred by Feb. 8th. At this date relapses began to occur. On the 12th a woman exposed to the infection of these cases was taken ill with what was at first considered influenza. She died from meningitis on the 23rd. A baby, 1 year old, exposed to infection from this case on Feb. 19th sickened on the 23rd and died on the 24th from cerebro-spinal meningitis. On the 18th, among the cases of relapse an eruption of a roseolar type was noted, mostly confined to the abdomen, forearms, and legs. In one case the eruption was general and resembled measles, in another it resembled scarlet fever. Several cases had herpes labialis and other painful erythematous patches. With one exception all made a speedy recovery, but the first case of the series developed cerebro-spinal meningitis, confirmed bacteriologically. Another case occurred on March 5th and the patient died within 24 hours, meningococci being found in both blood and spinal fluid. All cases of relapse with rashes had vomiting of straw-coloured fluid.

Dr. H. LYON SMITH and Sir JOHN BROADBENT, the latter of whom discussed the mechanism of the infection, also spoke.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF SURGERY.

Localisation of Modern Projectiles with Reference to a Special Method of Surgical Technique in their Removal.

A MEETING of this section was held on April 9th, Mr. H. STOKES being in the chair.

Dr. W. S. HAUGHTON, in opening a discussion on the above subject, gave an account of the different methods of localisation in use, and described in detail the method which he recommended as the simplest and most exact. He then gave the surgical details he advocated in the removal of foreign bodies, and described fully a case he had recently under his care of a bullet lodged deep in the spinal muscles of the neck.

Mr. M. R. J. HAYES said that if Dr. Haughton had succeeded in spanning the gulf between the radiologist and the surgeon he was to be thanked, as in no department of their work was the gap so great between the radiologist and the surgeon as in the localisation of foreign bodies. He agreed with Dr. Haughton that the most accurate method of localisation was the Mackenzie Davidson method. It was more complicated than the methods usually employed, but he considered that the additional labour was fully repaid by the results. He considered Henderson's method, which was very expeditious and if properly carried out was fairly accurate, not at all as good as the Mackenzie Davidson. He suggested that in the localisation of bullets which were fairly large what was wanted was to get a fairly accurate method which was at the same time easy of employment, and he thought that with further experience of the triangular method it was quite probable that the results would be better than they had hitherto been. In looking for fairly large foreign bodies, if one could get within 2 or 3 millimetres there would be no difficulty in finding them, and it was only in the case of foreign bodies in the eye that one would be driven to the use of the more difficult method of Mackenzie Davidson. Mr. Hayes suggested that there were a great many foreign bodies which would be far better left alone, and he had seen cases in which the attempts at removal had done far greater damage than would have arisen had they not been interfered with. Referring to the interpretation of radiograms, he agreed with Dr. Haughton that no one was in as good a position to know the exact site in the limb of a foreign body as the radiographer. He suggested that even the expert radiographer, if given a perfect skiagram and asked to locate the foreign body, would experience as much difficulty as the surgeon who had not the experience. A point which should not be lost sight of in attempting to find a foreign body was the position which the limb was in at the time of localisation, and it should also be remembered that the approximation of depth was always open to error, as the substance being dealt with was subject to alteration by gravity and pressure. Another point of importance which should be attended to by surgeons was that when cutting down upon a foreign body it was very easy at the commencement of the incision to follow a line which one believed to be in the direction of the bullet, but one might go a little to one side, and by the time the object was reached, if it was deeply situated, he would be well to one side or the other.

Mr. W. I. DE C. WHEELER said that a point which struck him was that if the bullet was localised and not found the whole fault lay with the surgeon, and this he agreed with to a certain extent.

Mr. P. E. HAYDEN agreed with Mr. Hayes that failures were often due to the deepening of the wound not being done quite in line where the incision was made. He suggested that a very valuable help in avoiding this mistake was first to mark the sites on the skin at either end of the wound. In deepening the wound it was advisable to look along these marks.

Mr. C. M. BENSON also referred to the difficulty of cutting down straight upon the foreign body, and suggested that this difficulty was removed by Dr. Haughton's idea of putting down a long sterile probe, and he thought that if two of them were used one could be absolutely certain of going in the right direction without being dependent on the eye to correct any retraction on the wound.

Dr. HAUGHTON, replying to the remarks, said he agreed with Mr. Hayes that in some cases very accurate methods of localisation were not required. He also admitted that if a bullet was lodged in a muscular pad it might safely be left there, but in his paper he assumed that the cases to be dealt with were those in which it would be considered desirable to operate. The influence of gravity in the localisation he had not lost sight of, and he considered it an important point which should be taken into account. He avoided suggesting any screening methods which involved length of time on account of the evil results of excessive exposure, and he would earnestly exhort everyone to keep away from screening as much as possible. He considered that the little gauge wire and the sterile needle demonstrated by him would be of the greatest assistance to the surgeon.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.—

A meeting of this society was held at the West London Hospital on May 7th, Dr. S. D. Clippingdale being in the chair.—Dr. H. J. F. Simson read a paper entitled "Some Developments in the Management of Labour." He began by pointing out how often it happened among married women of every class of society that when they came to consult their medical attendant they dated the beginning of their ailment from the last confinement. Such a state of affairs went to prove that the methods generally practised left some room for improvement. With regard to the question of a painless labour, about which so much had been said lately in the lay as well as the professional papers, the results of using morphine and scopolamine to produce the so-called "twilight sleep" were not so free from objection as many wished the profession and the public to believe. It was not free from risk either to the mother or the child. There was little doubt that the use of chloroform increased the risk of post-partum hæmorrhage, and the after-effects were often so unpleasant that multiparæ frequently preferred to endure the pains of labour during their later confinements. However desirable it was to enable labour to take place without pain, the fact remained that it was not yet possible to do this in all cases without risk. The greatest source of danger from external help lay in the possibility of puerperal infection. It was quite true that the absolutely sure way of preventing avoidable infection was to depend on abdominal palpation for diagnosing the position of the fœtus, and if one waited until there was pressure on the pelvic floor before giving chloroform one could be more or less certain that the os was fully dilated. Before this stage of labour was reached, however, the patient often suffered a lot of pain. For instance, a slightly œdematous anterior lip coming down in front of the head often prolonged the last part of the first stage by half an hour or more besides causing much pain. How much better it was to push the anterior lip up between the pains; this would entail passing the finger into

the vagina, of course. The point he wished to make was: if one can trust to one's precautions it does not matter, within reason, how often we examined in the last half hour, any more than if under proper conditions the hand is put frequently into the abdominal cavity during a laparotomy, but one must be able to trust implicitly in the precautions. With regard to the risk from post-partum hæmorrhage where means were taken to ensure painless delivery, either with chloroform or in the incomplete anæsthesia from scopolamine and morphine, the application of forceps at the end of half an hour's chloroform got over the difficulty if the chloroform was combined with the early administration of scopolamine and morphine, and a hypodermic injection of pituitrin shortly before the forceps were used.—Dr. Leonard Dobson considered Dr. Simson's paper so lucid and practical that there was little to add and nothing to criticise. With regard to the use of rubber gloves he had given them up as he found it practically impossible to keep them sterile during the progress of the confinement. He now relied on thorough washing and sterilising as for an operation and the use of a bowl of antiseptic solution into which the hands were frequently dipped. His experience of morphine and scopolamine had not been satisfactory and he had given up using it, especially on account of the effects on the child. He quite agreed as to the value of pituitrin given in the way Dr. Simson mentioned; the only drawback he had noticed was that occasionally the placenta was retained owing to the uterus contracting upon it instead of expelling it. With regard to the use of chloroform, he made it a rule never to give this unless the os was fully dilated and one could reasonably anticipate the birth of the head in about half an hour.—Dr. G. C. Crichton said that his experience taught him that the application of the forceps should not be too long delayed, whether the prolongation be due to fatigue or to a slightly contracted pelvis. As to antiseptic methods, great care and thought were needed in even ordinary simple cases; in the matter of cleanliness nothing was to be taken for granted.—Dr. Clippingdale gave some interesting details of historic confinements.—Dr. Vernon Monckton, Dr. S. R. Schofield, Dr. G. L. Turnbull, and Mr. W. P. Mallam also took part in the discussion.

BRADFORD MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on April 20th, Dr. A. Manknell being in the chair.—Dr. T. Jason Wood read a paper entitled "Some Remarks on Diagnosis in Abdominal Cases." These cases divided themselves broadly into two groups: (*a*) Those in which the symptoms were of sudden onset; and (*b*) those in which the symptoms were more moderate and of longer standing. In any case the chief things to decide were: 1. Was the patient's illness due to serious organic disease? 2. Was it a case in which operation was desirable or necessary, and when should operation be undertaken? Dr. Wood advised operation in all cases of serious abdominal injury if the pulse was good, as the probability was that some organ was ruptured. If the pulse was bad, the probabilities must be balanced and operation undertaken if possible. In civil practice all penetrating wounds should be operated on. In acute abdominal illness he laid stress on the fact that accurate diagnosis is well-nigh impossible. After enumerating the various conditions which may confront the surgeon when called upon to see an "acute abdomen," he pointed out that the first thing to decide was whether or not there was a perforation of a hollow viscus, as in these cases a few hours' delay meant death instead of recovery for the patient. He laid great stress on the fact that every case of severe abdominal pain is worthy of the closest examination from the very first. The cause of it is more likely to be serious than trivial. Until a diagnosis excluding certain things has been arrived at, purgatives on the one hand and morphia on the other should be avoided. Even though a perforation may have occurred no signs of collapse may be present.—The paper was discussed by Dr. W. Mitchell, Dr. D. Clow, Mr. G. H. Oliver, and Mr. J. Phillips, and Dr. Wood replied.—Mr. Oliver read a paper entitled "Some Remarks on Toxic Amblyopia." After mentioning the various drugs which have long been known to cause amblyopia, such as methyl and ethyl alcohol, lead, tobacco, male-fern, quinine, muscarine, iodoform, ergot, and many others, Mr. Oliver wished specially to draw attention to a new drug which had lately made its appearance in the treatment of pneumonia—namely, ethyl-hydrocuprein. He was called in consultation early in February to see a patient who had been very ill with pneumonia in the first week of January. Five-grain doses of ethyl-hydrocuprein were given every three hours. On the fourth day he had severe tinnitus and deafness, and on the fifth day he became suddenly blind, with semi-dilated and fixed pupils. In all he took 120 grains of the drug. He had bare perception of light, the retinal vessels were reduced to fine threads, and both discs were quite white and atrophic. Some slight improvement had taken place since.—Dr. J. C. Sykes introduced a discussion on the End-results of Gastro-enterostomy. He said that gastro-enterostomy had become one of the most fashionable and successful of modern operations, but unfortunately there were many failures, chiefly owing to faulty selection of cases. He severely condemned the surgeon who performed the operation in the absence of any trace of ulcer and comforted himself with the belief that it could drain the stomach and so relieve the suffering. It could not be too clearly emphasised that no good could come from gastro-enterostomy, ulcer though there be, if the pylorus was still patent and unobstructed. No food whatever would pass through an anastomotic opening, however large, so long as the outlet from the pylorus remained patent.—Mr. Phillips disagreed with Dr. Sykes's statement that no good could come from gastro-enterostomy if the pylorus was still patent, and quoted many cases where he had performed the operation with excellent results.—Dr. Mitchell said that X rays showed distinctly that food did pass through an anastomotic opening, even though the pylorus were patent.—Mr. Oliver, Dr. Wood, Dr. R. A. R. Lankester, and Dr. Manknell also took part in the discussion, and Dr. Sykes replied.

MEDICAL SOCIETY OF LONDON.—At the annual general meeting held on May 10th the following officers were elected:—President: Dr. William Pasteur. Vice-Presidents: Dr. David Lloyd Roberts, Sir St. Clair Thomson, Dr. Guthrie Neville Caley, and Mr. Walter H. H. Jessop. Treasurer: Dr. J. Mitchell Bruce. Librarian: Dr. Arthur Francis Voelcker. Honorary Secretaries: Sir John Broadbent and Mr. Hugh Lett. Honorary Secretary for Foreign Correspondence: Mr. Edmund Owen. Council: Mr. Donald Armour, Dr. Francis F. H. Bateman, Sir John Bland-Sutton, Dr. W. Ironside Bruce, Dr. Edmund Cautley, Mr. Edred M. Corner, Sir David Ferrier, Dr. H. Morley Fletcher, Dr. Herbert French, Mr. George E. Gask, Dr. John Gay, Dr. Bruce E. Goff, Mr. John D. Malcolm, Mr. Herbert S. Pendlebury, Dr. Guthrie Rankin, Dr. James H. Stowers, Mr. J. W. Thomson Walker, Dr. H. D. Waugh, Dr. W. H. Willcox, and Dr. Robert A. Young. After the business had been transacted a selection of the society's old and rare medical works were exhibited. Refreshments and smoking terminated the meeting. Owing to the absence of Sir William Osler on military service the annual oration and conversazione will not take place this year.

SMALL-POX AND VACCINATION IN BRISTOL.—At the last meeting of the Bristol health committee Dr. D. S. Davies, the medical officer of health, stated that the local outbreak of small-pox introduced from India was now practically at an end. Referring to vaccination, he remarked that it was difficult to get people re-vaccinated until they were face to face with small-pox, when they usually yielded without great demur. He added that he had recently had the gratification of vaccinating the originator of the antivaccination league in Bristol.

SANITARY INSPECTORS' EXAMINATION BOARD.—At the recent examination for qualifying sanitary inspectors under the provisions of the Public Health (London) Act, 1891, the examiners were Sir Arthur Whitelegge, chief inspector of factories and workshops (chairman); Dr. W. J. Howarth, medical officer of the City of London; Dr. Charles Porter, medical officer of health of St. Marylebone; Mr. O. Hall, medical officer of health of Plymouth; and Mr. R. Stephen Ayling, F.R.I.B.A. The examination included the inspection of artisans' dwellings and report thereon by the candidates, and the examination of specimens of meat and other foods provided by the Corporation from the City markets and specimens of fish provided by the Fishmongers' Company. Candidates were present from provincial towns as well as the London district, and 70 per cent. succeeded in passing the full examination.

Reviews and Notices of Books.

The Brain in Health and Disease.

By JOSEPH SHAW BOLTON, M.D., D.Sc. Lond., F.R.C.P. Lond., Professor of Mental Diseases, University of Leeds; Medical Director, West Riding Asylum, Wakefield, &c. London: Edward Arnold. 1914. Pp. 479. Price 18*s.* net.

THOSE who have followed with interest and instruction Profesor Shaw Bolton's researches on the correlation of cerebral structure and cerebral function and of mental symptomatology and cerebral pathology—as epitomised, for instance, in his recent Goulstonian lectures—will extend a ready welcome to this more ambitious volume, in which he deals with his systematic researches of some 18 years in a comprehensive fashion. In a brief but important preface he makes clear his point of view. After referring to the strides taken by biochemistry, bacteriology, and pathological psychology, and remarking that each of the methods of research based on these has been claimed by its advocates as the long-sought-for means by which the knowledge of psychology and of psychiatry would at last be advanced, he states that his volume is a contribution to the subject which is based on the old anatomo-clinical or clinico-pathological method, of which he truly remarks that it has been employed with success in the past in all the major investigations in the field of medicine.

The book is divided into two parts. The first deals with cerebral function in the normal brain: the minute histological features of the normal cortex are set forth in great detail and the accepted localisations of cerebral function are described and exemplified. The pathological changes in the cortex found in various mental diseases are given in similar detail, special attention being directed to those areas which are commonly affected. In this part of his subject Professor Shaw Bolton bases his findings on personal researches, which, for minuteness of investigation and breadth of interpretation, leave nothing to be desired. The second part of the book is concerned with cerebral function in mental disease. Taking the differentiation, which he has long advocated, of mental disease into "amentia"—i.e., subnormal cerebral function—and "dementia"—i.e., morbid cerebral function—the author proceeds to deal with the varieties of each, in every instance endeavouring to correlate their clinical features with their histo-pathology.

The author's main generalisation is based on a mass of clinical and pathological evidence which represents the work of many years, and is handled with great ability. He holds that the outer cell laminæ of the cortex subserve the associative, psychic, or educative functions of the cerebrum, in contradistinction to the inner layers, in which are localised the organic and instinctive functions. The subjects of amentia, in the sense above specified, are found, microscopically, to suffer from a more or less marked grade of deficient neuronic development, of subevolution of the cerebrum, while the subjects of dementia suffer from a more or less marked grade of true involution or dissolution. These changes are seen mainly in the cortex of the prefrontal region of the cerebrum. The existence of amentia does not preclude the onset of dementia. In arriving at these conclusions the author has made a specialty of the micrometric study of the cortex of the insane, and with unsurpassed patience has measured and investigated the histopathology of projection and association areas of the cortex in a very large number of brains from insane patients of every variety. His technique is described in detail, and well-reproduced illustrations render it easy for the reader to follow the author's argument and add materially to the value of the book.

It is clear that Professor Shaw Bolton has adduced evidence in favour of his main contentions which cannot be lightly set aside, nor can criticism be adequate unless it is based on the utilisation of similar material and on the prosecution of similar investigations. The alienist and the neurologist, indeed, the general physician, should be familiar with this monograph, in which the clinico-pathological method is shown to the greatest advantage and in which is embodied, as it were incidentally, a whole series of illuminating observations on the problems of cerebral function and cerebral localisation. At a time when indiscriminate resort to purely psychological methods of investigation might appear almost to be forcing a disruption of clinical phenomena in mental disease from any corresponding pathology, the solidly based researches here reported deserve the closest attention, and we anticipate for them a widespread recognition.

Flies in Relation to Disease: Bloodsucking Flies.

By E. HINDLE, B.A., Ph.D. Cambridge: University Press. 1914. Pp. 398.

THIS is a companion volume to one recently reviewed in this column which dealt with the transference of disease by non-bloodsucking flies.

In the present volume the author details the present state of our knowledge concerning those flies which by their bite directly transfer parasites to the bodies of their victims and the nature of the parasites thus injected into human and other beings. The book, in fact, is a zoological handbook, but the author assumes a general knowledge of that science on the part of his readers. Any person thus prepared will obtain from the study of Dr. Hindle's guide a very good general acquaintance with the anatomy of the diptera, and also an insight into the systematic arrangement of those flies which form the subject of the treatise. Similarly, though to a less degree, the structure and life-histories of the parasites, protozoa and filariæ, are set before the student of this department of biology. The author, however, by no means neglects the utilitarian aspect of his subject.

Observing (in the preface) that "the fly's proboscis is more successful in retarding the progress of civilisation and the alleviation of human suffering than all the armaments of our most Christian Powers!" he reassures the less expert readers that as to yellow fever, "owing to the factors involved being relatively simple, it is literally possible within a few months to remove this most deadly disease from the list of human ailments." This and other diseases are entered into in the text with due regard to their history in the past and the symptoms available for their detection. Dr. Hindle points out the curious fact that so long ago as 1848 the origin of yellow fever was attributed to "some insect or mosquito." This, of course, was in the nature of a happy guess, for the real association between flies and the spread of disease is, as is well known, a matter of recent discovery. In the case of yellow fever, however, the discovery is very far from complete. Though the fly responsible has been tracked

and is known to be Stegomyia fasciata, the parasite which it carries has not been hunted down. In the case of the, also tropical, disease dengue, the author gives us, what he does not in the case of yellow fever, two most informing maps; of these, one shows the range of the sickness and the other the distribution of the mosquito involved, which has been ascertained to be Culex fatigans. There is a very close correspondence between the two, which can be grasped at a glance.

This excellent volume shows us that while zoologists can justly boast of the utilitarian as well as philosophical importance of their studies, the medical profession have on their side given great stimulation to the investigations of the zoologists. The anatomy and systematic arrangement of various insects and protozoa are now becoming the best explored regions of the animal kingdom.

Castration and Ovariotomy.

By FREDERICK T. G. HOBDAY, F.R.C.V.S., F.R.S.E., Honorary Veterinary Surgeon to His Majesty the King; Examiner in Surgery and Obstetrics to the Royal College of Veterinary Surgeons, &c. London and Edinburgh: W. and A. K. Johnston. 1914. Pp. 162.

THIS is the second edition of a little book which has been out of print for some years, and that a second edition of a work on such a subject as "The Castration of Cryptorchid Horses and the Ovariotomy of Troublesome Mares" should be demanded proves that the tendency for "specialising" in animal surgery is moving with the times in the same way as has been the case in human practice. The new edition has been enlarged to include the castration of the domesticated and semi-domesticated animals, and the work of other specialists in this line has been freely quoted.

The first chapter deals with castration, and includes a clear account of the best and most usual methods of performing this operation in a large number of animals. The operations practised for scrotal hernia in the horse, dog, pig, and calf are next described, and then the author considers the interesting question of the castration of cryptorchid horses. The term "rig" or "ridgling" is commonly applied to horses with an undescended testicle. The origin of the term is uncertain, but one form of it—viz., "ridgil"—occurs in Dryden, who in his translation of Virgil's Pastorals, says:—

> And ware the Libyan ridgil's butting head.

Horses with this condition are notoriously vicious and uncertain animals, and their amorous tendencies often cause a great deal of trouble to their owners. Possibly it is this trait which explains the name "rig," since this word was employed by the old writers to denote a wanton or a strumpet. No doubt some male pseudo-hermaphrodites among horses are of this character, and in parts of the country the curious name of "Will-Gill" is applied to these animals. The derivation of this term also is a matter of curiosity. Can it be from will to wander, and gill or jill, a girl; denoting a similar conception of the characteristics of the animal to that implied by the name "rig." Most of the horses affected in this way are sterile, although potent, and the operation of castration is extremely successful in curing them of their "rig" propensities. As Mr. Hobday points out, to ensure success the strictest surgical cleanliness is as essential as in operations on the human subject.

Just as castration is a most useful operation in cryptorchid horses, so ovariotomy can often be practised with great success in the case of mares who suffer from a condition of troublesome, almost constant, œstrum. The failures are, as a rule, only in the case of old animals in whom kicking has become a habit, and if the operation is performed before the condition has existed for any length of time the results are excellent. The operation is performed by choice by the vaginal route, the posterior fornix being opened with a guarded knife, the opening enlarged with the fingers, the hand introduced into the abdominal cavity, and the ovaries removed by an écraseur. If the operation is done successfully there is practically no bleeding and the after recovery is very rapid. In one case alluded to by the author the mare was hunted on the sixth day after the operation and no ill-effects followed. In mares who have become a nuisance on account of indecent behaviour the author states that the operation almost always cures, and this opinion is based upon the results of more than 90 consecutive cases in which this operation has been performed.

Another interesting and useful operation described is the spaying of cows when they are nearing the age at which their dairy utility is diminishing. As a result the milk-supply is increased in quantity and enriched in quality, and the period of lactation is extended to an average of about 18 months. This procedure is practised to a very large extent in Switzerland, but for some reason or other an attempt made by the late Professor John Gamgee to introduce it into this country was not successful. It is interesting at the present time to recall the fact that the originator of the method of operating through the vagina in the cow is M. Charlier, of Rheims. Professor Flocard has recorded 5079 cases of spaying in cows, and in the last 3000 animals he has had no deaths and only 4 or 5 per cent. of accidents of secondary importance. An interesting final chapter on abnormalities of the sexual glands of man and horses is contributed by Sir John Bland-Sutton.

This brochure, as its author terms it, forms extremely interesting reading, and gives a very good and complete account of the two operations of which it mainly treats.

Animal Experimentation and Medical Progress.

By WILLIAM WILLIAMS KEEN, M.D., LL.D., Professor Emeritus of Surgery, Jefferson College, Philadelphia. With an introduction by CHARLES W. ELIOT, LL.D., President Emeritus of Harvard University. Boston and New York: Houghton Mifflin Company; London: Constable and Co. 1914. Pp. 312. Price 7*s.* 6*d.* net.

"THERE is not, and there never was on this earth, a work of human policy so well deserving of examination as the Roman Catholic Church." So, practically, begins one of the best known of Macaulay's essays. But there is another work of human policy which, although its life has been ephemeral compared to that of the Church, whether Western or Eastern, may take Macaulay's words to itself, especially when we remember who it was that said, "The Son of Man is not come to destroy men's lives but to save them." And that work is the great work of lessening or preventing disease and of rendering the most intricate operations of surgery possible and safe which scientific men of all nations have been carrying out for many years past, and especially within the last 50 years. That

work is now undergoing the most stringent test possible on the battle fields of Europe, and nobly does it answer to the test. For the British part of the long battle line we have the report of Sir John French[1] as to the general health of the army, and among other things he says: "I would particularly comment upon the energy displayed by the Royal Army Medical Corps in the scientific efforts they have made to discover and check disease in its earliest stages by a system of experimental research, which I think has never before been so fully developed in the field."

Now practically the whole of modern surgery, the whole of preventive medicine, and the greater part of clinical medicine is rooted in and grounded upon researches made upon animals. These facts are, or should be, known to all medical men, though there are apparently some who are either ignorant of them or who do not believe them; but many a layman is naturally unacquainted with such facts, and to such we recommend Professor Keen's excellent book. It is a reprint of sundry papers and addresses, published or delivered from time to time between 1889 and 1913, and is divided into two main portions. The first comprises papers dealing with what has been accomplished by animal experimentation, the second includes those dealing with what Professor Keen calls misrepresentation on the part of objectors to "vivisection," using the word as the said objectors are wont to do, in its widest sense as signifying any kind of experiment upon a living animal. On the former portion it is unnecessary to enlarge, but in regard to the latter it is as well to insist on certain points. There is no one who will object to persons disliking vivisection or even as a matter of invincible ignorance denying that any advantages have accrued to humanity therefrom. The ignorant and the foolish have always existed, and will probably continue to exist. But what all honest men, whether they approve of vivisection or not, must reprobate, is the way in which the opponents of research try to bolster up their cause. The following examples of misrepresentation given by Professor Keen may serve as samples. One appears on p. vi., in which is quoted a letter written by Mrs. Henderson, Vice-President of the American Antivivisection Society, to the *Philadelphia Ledger* of Dec. 19th, 1913. In this letter she asserts, says Professor Keen, that "Dr. Crile's book ..... repeatedly describes experiments followed by the words 'no anæsthesia!'" Dr. Crile answered this charge by saying that in not a single instance do these words appear in his book ("Surgical Shock"). Professor Keen could not find them either, but he did find the following words: "In all cases the animals were anæsthetised." Mrs. Henderson, on being challenged both by Professor Keen and by the editor of *Harper's Magazine* to name the pages in question, did not reply, nor do we know that she has replied since this book was published. An even worse case is the misrepresentation of Dr. Wentworth, of Boston, of whom the antivivisectionists wrote in the *Journal of Zoophily* for April, 1910, that he experimented "upon between 40 and 50 little children in the Children's Hospital of that city, every one of whom died after the performance of his operation." The whole story is too long to quote, but shortly the facts are these. The date was 1895 when the operation of lumbar puncture was new. Thirty children had 45 punctures made. In 3 cases the puncture was made after death. In 15 of the 30 cases the puncture was made for diagnostic purposes, meningitis being suspected. In the other 15 cases the puncture was made for cytological research. Of the 27 living children who had the operation performed 14 died, not from the puncture, but from meningitis, or tubercle, or pneumonia.

We recommend, in conclusion, the persual of the series of papers at pp. 110 *et seq.*; these contain a correspondence with Mr. James M. Brown, President of the American Humane Association, which commenced on Oct. 4th, 1900. Professor Keen's polite and crushing rejoinder to Mr. Brown would have afforded keen joy to those past masters in the art of flattening out controversial opponents, the late Professors Huxley and Goldwin Smith.

[1] The Times, April 15th.

LIBRARY TABLE.

Health for the Middle Aged. By SEYMOUR TAYLOR, M.D. Aberd., F.R.C.P. Lond. London: Methuen and Co. 1915. Price 1*s.* net.—In writing this excellent little book for laymen, Dr. Seymour Taylor has confined himself to useful generalities, excluding technical medical terms and giving advice as to the conduct of daily life that anybody should be able to understand and take. He who would live long should above all things be moderate in four indulgences—namely, eating, alcohol, tobacco (the cigarette habit is specially barred), and exercise. In addition Dr. Taylor recommends plenty of sleep, absence of worry, and the investment of cash in an annuity or insurance policy. The book may be warmly recommended to the middle aged, for whom it is written, though the advice will often reach them too late. For its perusal suggests the thought that the habits formed in youth are not readily altered in the second half of life. Much of the good advice it contains may be found in the old saw of the medical school at Salerno, dating, appropriately enough, from the Middle Ages:

> Si tibi deficiant medici, medici tibi fiant
> Haec tria; mens hilaris, requies, moderata diaeta.

An Introduction to School Hygiene. By W. B. DRUMMOND, M.B., C.M. Edin., F.R.C.P. Edin. With illustrations. London: Edward Arnold. 1915. Pp. 237. Price 3*s.* 6*d.*—This little work on school hygiene is written for teachers and students of education. Since the introduction of the medical inspector into the school teachers have shown a commendable interest in all those factors which directly influence the health of their pupils and indirectly their learning capacity. Although many works have been published on school hygiene most of them are too medical or too technical for the average assistant teacher in an elementary school. Dr. Drummond has successfully found the *via media* between the too scientific and the too popular. He explains in quite simple language how defects in the organs of special sense, the eye and the ear, may be discovered by an intelligent and observant teacher, and how unhygienic and insanitary conditions may detrimentally influence the physical health of school children and consequently their capacity for acquiring knowledge. A whole chapter, and a very useful one, is devoted to the care of the voice and the defects of speech. Professor Wyllie's classification, physiological alphabet, and methods are described sufficiently plainly to enable the teacher to discover in his pupils the causes of many speech defects and their mode of correction. We are glad to notice

that the author warns his readers against forced breathing, which, he says, may lead to stiffness and rigidity of the chest walls; and in this connexion it might have been of equal service if a timely warning had been offered against attempts at making children breathe through the nose when the nasal air passages are too narrow to permit of adequate respiration by this route. Considerable attention is devoted to the subjects of heating, lighting, and ventilation, but the information afforded is highly practical and free from scientific technicalities. On school buildings some useful observations will be found, and a model plan on the Staffordshire type is commended to the notice of teachers as fulfilling at the least expense most of the admitted requirements. The central hall with its inherent faults and impediments to cross-ventilation is condemned, although the compactness which the system affords is admitted to facilitate mechanical ventilation—an advantage that the author cynically observes will appeal to those who regard this kind of ventilation as an end and not as a means. As a short, interesting, and up-to-date introduction to school hygiene we strongly commend Dr. Drummond's little book to the notice of educationists.

Glaucoma: A Symposium Presented at a Meeting of the Chicago Ophthalmological Society, Nov. 17th, 1913. Edited by WILLIS O. NANCE, M.D., President of the Chicago Ophthalmological Society (1913), and WESLEY HAMILTON PECK, M.D., President of the Chicago Ophthalmological Society. Chicago: Chicago Medical Book Company. 1914. Pp. 150. Price 6s.—In this symposium on glaucoma the whole subject is reviewed from various standpoints by well-known American ophthalmologists, and Lieutenant-Colonel R. H. Elliot, I.M.S., the only Englishman contributing, deals with the operation of trephining which he has so ably advocated. Operations other than scleral trephining for the relief of glaucoma are described by Dr. Casey A. Wood. The etiology and classification of glaucoma are reviewed by Dr. Edward Jackson, the pathology by Dr. John E. Weeks, and treatment by non-surgical measures by Dr. George E. de Schweinitz. None of the papers is really exhaustive, but all are good and contain instructive material. The paper by Dr. de Schweinitz is particularly noteworthy for its completeness and sound sense. Much as all ophthalmologists appreciate the value of trephining, it is well to be reminded, as Dr. de Schweinitz reminds us, that "increased tension is not the whole story of glaucoma, and a filtering cicatrix is not the last word in surgical therapeutics, but there is much to learn."

Bibby's Book on Milk. Section II., The Law relating to the Sale of Milk. Fourth edition. 1914. Liverpool: J. Bibby and Sons. Pp. 256. Price 4s. net.—In addition to articles on the history of the law as affecting the trade of milk, with criticism of its administration and suggestions for its amendment, this volume will be found to contain a good deal of miscellaneous information, not always available in legal text-books, in the form of copious extracts from reported cases. These include not only those reported in the lawyer's sense—i.e., published as decisions of the higher courts in the accepted law reports—but cases in courts of summary jurisdiction, which may throw light upon the practical working of the law relating to adulteration and other topics, but which usually are not available for the purpose of reference. Explanatory notes on the Food and Drugs Acts, extracted, with acknowledgment, from Stone's Justices' Manual, Bell's Sale of Food and Drugs Acts, and Mr. Hedderwick's volume on the same subject, summarise in a convenient manner information capable of being of use to those whose duty it is to safeguard the food-supply of the public.

JOURNALS.

Journal of Anatomy and Physiology. Conducted by Sir WILLIAM TURNER, K.C.B., Professor ALEX. MACALISTER, Professor ARTHUR THOMSON, Professor ARTHUR KEITH, and Professor ARTHUR ROBINSON. Vol. XLIX. Third Series, Vol. X., Part III. April, 1915. London: Charles Griffin and Co. Annual subscription, 21s., post free.—Apparently there is no portion of the human body that can be exhausted as a subject for the researches even of gross anatomy. It certainly seems that it is impossible to come to an end of the anatomy of the femur. Within the last two years the femur has been the subject of a great many papers, and yet Dr. Thomas Walmsley in his two studies has managed to find plenty of new material. His first contribution deals with certain structural details of the neck of the femur, and the second with the neck of the femur as a static problem; and we are of opinion that both these contributions will prove the stimulus to further work. Both studies are of great interest and are permanent and solid contributions to the literature of the femur. We would remind the author that both H. Cloquet and J. Cloquet were surgeons and anatomists.—Another careful study is that by Dr. R. J. M'Connell on the Topographical and Applied Anatomy of the Gall-bladder and Bile-ducts, a paper the type of which we have rather missed from the journal of late. The illustrations are particularly good, and in them one can detect what one may express with admiration as the influence of the Belfast school.—Anomalies are dealt with in the remaining papers. Dr. James C. Brash describes in great detail a vertebral column with six and a half cervical and 13 true thoracic vertebræ, with associated anomalies of the cervical spinal cord and nerves. The column was obtained from a male subject aged 61, and it is an extremely anomalous one of a type not uncommon in malformed fœtuses. Dr. Brash has made a very exhaustive study of the spinal column, the spinal cord and nerves, and he concludes (we believe quite rightly) that the "bone condition is secondary to the nerve anomaly."—Two cases of Cervical Ribs are described by Miss M. F. Lucas (here designated as "Mr."). The paper is one which we hope will be imitated, since the arrangement of all the vertebral elements and the constituents of the limb plexuses are recorded in detail. The anomalies are found not infrequently in the dissecting room, and it is only by records such as these that the study of the subject is likely to be advanced. Too often the associated parts, which alone may help in an understanding of the condition, are dissected away or disregarded when note is made of the anomaly. The paper is well illustrated.—Miss Lucas also contributes a paper on an Anomalous Arrangement of the Vagi. At first sight the case is a remarkable one, for the usual spiral arrangement of the vagi on the œsophagus is exactly reversed, the right nerve lying in front of, and the left behind a normally situated œsophagus and stomach. The author, however, concludes that only an exaggeration of a not infrequent type of resolution of the plexus gulæ is present.—Dr. Douglas G. Reid continues his studies of the disposition of the peritoneum with a contribution on Appendices Epiploicæ and Pericolic Membranes.—Under Anatomical Notes Professor E. Fawcett describes and illustrates two rare and interesting cases. The first is that of an internal mammary artery arising from the thyroid axis; the second is an instance of the rare condition of the external semilunar cartilage forming a complete circular disc covering the external tibial facet. There is surely a misprint in the statement that "Bruce Clarke saw three such cases in one *limb*."

The Philippine Journal of Tropical Medicine, Vol. IX., No. 6.—The first article of this number is by Dr. E. H. Ruediger, who writes upon the subject of the germicidal power of glycerine on various micro-organisms under differing conditions. From his experiments he concludes that

glycerine has a distinct though feeble germicidal action, and that it seems to be a selective poison for the bacillus of plague, the spirillum of cholera, and the bacillus of diphtheria. In 50 per cent. of glycerine in physiological salt solution all the non-sporing organisms died in less than four days. Dr. Ruediger makes no reference to the fact that for nearly 20 years the bactericidal action of glycerine has been used to remove the extraneous organisms from vaccine lymph in England and other European countries.—Dr. Otto Schöbl has been carrying out researches on the vitality of cholera vibrios in Manila waters. He has found that these vibrios remained longer alive in less polluted waters than in those more highly contaminated, and that the organisms disappeared earliest from distilled water, remaining most numerous in the sea water.—The morphology of the adults of the filaria found in the Philippine Islands is described by Dr. Ernest Linwood Walker, who expresses the opinion that the Philippine filaria is identical with F. bancrofti.—Dr. Honoria Acosta Sison, of the Department of Obstetrics in the University of the Philippines, contributes an article on pelvimetry and cephalometry among the Filipinas. From her observations she finds that the Filipino pelvis is smaller than that of the American or European, and this may to some extent be explained by the smaller stature of the Filipino race. The transverse diameters of the Filipino pelvis, except the transverse diameter of the pelvic outlet, are smaller than those of the European or American. The relative enlargement of the transverse diameter of the pelvic outlet may be explained by the habitual squatting position that the Filipinas assume, and by the fact that the carrying of the child astride the hips of the mother or nurse may also affect the child in the transverse diameter of its pelvic outlet. The head of the newly born infant is proportionate with the Filipino pelvis.—Dr. R. B. Gibson supplies a note on the physiological action of the proteoses, and the same writer in conjunction with Dr. Isabelo Concepcion furnishes a paper on the lymphagogic action of the Philippine mango, Mangifera indica (Linnæus).—Dr. Concepcion also contributes some observations on mango rash. It appears that transient eruptions of an erythematous type occur in the natives of the Philippines during the hot season, and are attributed popularly to the eating of mangos. Dr. Concepcion extended the observations to ascertain if the fruit had any influence in this respect upon infants through the mother's milk. Four newly confined mothers in the obstetrical ward of the Philippine General Hospital were selected for experiment and were given six mangos daily with their meals. In all the cases except one rashes were produced on both mother and child. It is believed that the babies are more susceptible than the mothers.—An interesting instance of milk poisoning due to a type of staphylococcus albus occurring in the udder of a healthy cow is described by Dr. M. A. Barber. The symptoms produced resembled those of so-called ptomaine poisoning. The cases occurred from time to time on a certain farm, and extended over a period of about four years. The particular cow whose udder was discovered to be infected had been imported from Australia. The fresh milk was harmless, but when it had stood for some hours at a room temperature a toxin was developed in sufficient quantity to give rise to acute gastric disturbance. Culturally the toxin-producing staphylococcus differed little from a non-toxin producing strain, except that the former produced acid in mannite and maltose litmus agars. This number completes Vol. IX.

ERRATUM.—In the review of Sir Edward Schäfer's "Introduction to the Study of the Endocrine Glands and Internal Secretions," published last week on p. 970 of THE LANCET, Sir Edward Schäfer's newly coined word "autacoid" was spelt "antacoid" by a printer's error. We take this opportunity to correct the mistake; the word "autacoid," derived from the Greek αὐτός, self, and ἄκος, a medicinal agent or remedy, was applied to the specific hormones and chalones of internal secretions in order to draw attention to the way in which their action resembles the action of drugs, such as the vegetable alkaloids.

THE late Mrs. T. Aitken has left £10,000 each to the Ramsbottom Cottage Hospital and the Aitken Sanatorium for Consumption at Holcombe, near Bury.

AN ANALYSIS OF THE NATURAL MINERAL WATERS OF VERGÈZE, FRANCE (SOURCE PERRIER).

INASMUCH as Perrier water is supplied to this country in very large quantities, and is rapidly increasing in popularity, an independent examination of it from a hygienic point of view may be held to be desirable in the public interest. We have been asked to give a detailed opinion of the suitability of Perrier water for table purposes based upon a consideration of the conditions under which the water is bottled and sent to the consumer, and upon the results of our own chemical and bacteriological examinations of the water.

We have received samples direct from the springs and have made our own purchase of samples upon the market, all of which have been submitted to chemical and bacteriological examination. The samples examined included two taken from the springs, the first not being under pressure, and the second having been aerated with the natural gas which escapes in large quantities from the springs.

The results of the bacteriological and chemical examinations of these samples were compared with those obtained with the samples representing those purchased by the public, and this comparison appears in the figures given below. In addition, we have made certain inquiries as to the situation of the springs and as to the methods of bottling the water, which, of course, needs to be carefully carried out in order to preserve the water in a state of purity desirable for drinking purposes.

Source Perrier owes its name, it is interesting in passing to remark, to a well-known medical man, Dr. Louis Perrier, of Nimes, a town situated some nine miles away from the springs at Vergéze, Gard. There is abundant evidence to show that the springs were known to the Romans, but not until recent times was it realised that "the boiling springs"—"les bouillens," as they are locally called—might furnish a plentiful supply of natural aerated water for table purposes. Chiefly through Dr. Perrier's energy the plant and machinery for bottling in bulk was installed near the springs, and this natural sparkling table water soon enjoyed a considerable patronage not only in France but in this country also.

The complete purity of both the natural water and carbonic acid gas demands very careful watching in the bottling process in order to avoid the slightest departure from a high standard, and the natural circumstances well assist the efforts of the proprietors. The springs are situated in the midst of fields and vineyards far from human habitations. They rise in the Cevennes mountains, visible at a distance of some miles, and thence flowing underground through sandstone, clay, and chalk, emerge to the surface at Vergéze, in the Midi, and some twenty miles from the sea coast in the direction of Montpellier. Of the springs available the one chosen for bottling purposes is the least mineralised. Special precautions are taken to bottle the water under the cleanliest conditions possible. To this end the bottles are subjected to a thorough washing process effected by machinery, and all pipes conveying gas and water and the aerating plant itself are kept scrupulously clean. If strict attention was not practised in any one of these directions the bottled water would not pass the requirements of both chemical and bacteriological standards of purity, in spite of the purity of the springs themselves.

Chemical Composition of Perrier Water.

According to an analysis made in THE LANCET Laboratory, samples of the water taken directly from the source, both still and sparkling, and samples procured on the

market, show the following composition in regard to mineral ingredients, the results being given in grains per gallon :—

TABLE I.—*Chemical Composition.*

	Still from source.	Sparkling from source.	Market sample.
Calcium carbonate	26·04	28·00	29·40
,, sulphate	3·22	3 22	3·22
Magnesium carbonate	0·63	0·42	0·42
Sodium chloride	2·60	2·60	2·00
Silica	1·68	1·12	1·12
Total mineral matters ...	34·17	35·36	36·16

The water of Source Perrier thus belongs to the group of natural springs classed as "indifferent" or simple "acidulous" waters. It contains no active medicinal constituent. In a table water in constant use the presence of such may be undesirable. Even considering the total quantity of salts present, it is clear that the mineralisation is very moderate, and the chief constituent is carbonate of calcium dissolved in carbonic acid gas. The total salts amount to an average of 35 grains per gallon, or a little over 4 grains per pint, of which about three-fourths is carbonate of calcium. This salt in solution, of course, gives the water some antacid properties and, no doubt, adds to its palatability. A small quantity of sulphate of calcium is present also, confirming the statement as to the flow of the water through calcareous bearings, which are well known to furnish the purest water for potable purposes. Sodium chloride occurs only to the extent of 2 grains or so to the gallon, a quantity which can have very little importance from a therapeutic or palatable point of view. The analyses of the various samples obtained establish the identification of the water procured in the open market with the waters directly from the source, and further show that it is remarkably constant in composition.

Organic Purity of Perrier Water.

The same samples were next examined for organic purity by chemical analysis, and for this purpose the estimation of the free ammonia, albuminoid ammonia, nitrogen in nitrates, and oxygen absorbed was decided upon.

The following were the results given in parts per 100,000 :—

TABLE II.—*Organic Purity.*

	Still from source.	Sparkling from source.	Market sample.
Free ammonia	0·0006	Trace	Trace.
Albuminoid ammonia ...	0·0006	Trace	0·0007
Nitrogen in nitrates	0·4300	0·4100	0·4000
Oxygen absorbed	0·0280	0·0200	0·0400

A sample of the water from the spring and a sample also procured on the market were submitted to bacteriological analysis.

The sample taken direct from the spring without any special precautions gave the following results :—

Growth from 1/10 c.c.	Colonies per 1 c.c.
In gelatin at 22° C.	2680
In agar at 37° C.	810

There was no evidence of the presence of bacillus coli when operating on 200 c.c., 100 c.c., 10 c.c., 1 c.c., and 0·1 c.c. respectively, and the organisms present are of no importance pathologically. The complete absence of coliform organisms or streptococci is remarkable, and shows the water is well guarded from contamination. The sample procured on the open market gave still more striking results. It contained neither bacteria in 1 c.c. nor bacillus coli in 100 c.c., and the water is thus seen to be sterile.

In Table II. are recorded the results of examination in regard to organic purity based upon the estimation of free ammonia, albuminoid ammonia, nitrogen in nitrates, and the oxygen absorbed from a weak permanganate solution. The figures obtained demonstrate an unusual degree of organic purity which, in fact, surpasses that of most of the public water supplies. This speaks well for the precautions taken to guard the source from contamination and for the cleanliness of the bottling processes. Perrier is thus an exceptionally pure water.

Bacterial Purity of the Water.

Consistently with the high degree of organic purity revealed by chemical examination the bacteriological results negatived contamination. Samples of Perrier water procured on the market were, in fact, shown to be sterile, no ordinary water bacteria being present, and a search for bacillus coli failed to find this organism, even when 100 c.c. of the water was examined. In the sample obtained direct from the spring some harmless water bacteria were found, but again no bacillus coli. There are few natural waters which would not show bacteria present in 1 c.c., the deep well water showing the least, and the river or surface water the most number. It seems clear that Perrier water is derived from a very deep source, which accounts for its bacterial purity, and this purity is maintained up to the time it reaches the consumer, the risks entailed by collecting and bottling being removed by scrupulous care in the processes. These results incidentally point also to the bacteriological purity of the natural carbonic acid gas and of the cleanliness observed in the aeration process.

The Natural Carbonic Acid Gas of the Perrier Springs.

The carbonic acid gas was carefully collected from a bottle of Perrier water and examined. It proved to contain 99·65 per cent. of pure carbonic acid gas, the residue, 0·35 per cent., consisting of about equal volumes of nitrogen and oxygen.

Conclusions.

These results of analyses show that Perrier water can stand the most exacting ordeal required by chemical and bacteriological investigation in regard to questions of purity. It possesses no objectionable mineral salts, is organically pure, and is perfectly free from harmful bacterial life. The samples obtained upon the market were, in fact, sterile. Such findings afford a strong recommendation in regard to any potable water, and in a water pleasantly aerated with the natural carbonic acid gas of the springs the result is particularly satisfactory. The care taken to preserve the water in its pure state on its way from the springs to the consumer has clearly been complete. The advantages of natural carbonic acid gas in table waters are still a matter of controversy, some maintaining that the chemically prepared gas is less easily assimilable. There is one important difference which is noticeable when natural gas is used, and that is, it gives a softer and pleasanter taste to the water and renders it more palatable and digestible. For some reason artificial gas gives a sharper, more strongly acid taste to table water than does the natural gas, and this may well prove to be a dietetic disadvantage. Some medical men in France attach great importance to the use of natural gas for aeration purposes and attribute to it a more favourable action on the gastric processes, but it is generally agreed that the moderate use of aerated beverages promotes digestion and stimulates the motor activity of the stomach. There is evidence that they help digestion also by a mechanical process, the bubbling up of the gas through the stomach contents facilitating their disintegration. The natural effervescing waters appear also to influence osmotic processes to a greater degree than artificial mineral waters, and thus increase the powers of absorption and promote diuretic action.

It may be added that Perrier water has been systematically and periodically examined by Dr. Wilson Hake, lecturer on chemistry and toxicology in the Westminster Hospital Medical School, since the water was placed upon the market in 1904 to the present time. The many results he has thus obtained in his controls show no appreciable deviation from his first figures, and our recent analyses confirm his work in all significant particulars.

THE PEREIRA MEDAL.—At the May meeting of the council of the Pharmaceutical Society the Pereira medal was adjudicated to Miss Dora F. White. This medal—which is generally regarded as the blue ribbon of pharmacy—was struck in 1861 in memory of Jonathan Pereira, the great authority on materia medica, and has been awarded annually ever since. This is the second time it has been won by a woman pharmacist. The Pharmaceutical Society's silver medal has been won by Mr. A. J. Somes and the bronze medal by Mr. R. W. Bowles.

THE LANCET.

LONDON: SATURDAY, MAY 15, 1915.

The Scarcity of Medical Men: The Proposal of the Pharmaceutical Society.

SOON after mobilisation it was realised that the wave of enthusiasm for active service was likely to affect the number of medical students presenting themselves for examination. From all medical schools came accounts, not only of diminished entries of new students, but of the serious depletion in the ranks of students who had already reached their third and fourth year of medical studies. The desire to be on active service in defence of the realm had led many to enlist, and it was therefore realised that, unless some means of adjusting the balance could be devised, there was likely to be a serious shortage in the supply of medical men for the future needs of the nation. This difficulty, which is entirely disconnected with the immediate needs of the Army Medical Service, was early recognised by the President of the General Medical Council, and on his representation an order was issued releasing from the responsibilities of enlistment which they had incurred all medical students in their third or fourth year, so that they might be able to resume the normal course of their work and fit themselves for qualification at the earliest possible date. It was realised that these men, who had already gone through several years of training in the preliminary subjects, would be far more useful to the nation in their medical capacity than they could possibly be as simple units in the army. As these young men become qualified they will probably join the Royal Army Medical Corps if the war still goes on. In this service the younger men are likely to be more pliant and more ready cheerfully to carry out orders in face of difficulties than older men, who might naturally resent having their instructions given to them by officers who, though superior in rank, must be younger in years. But while the younger men obtain in this way an enviable pride of place, the older men, whom circumstances have reserved for home service, are meeting the needs of the civilian population with alacrity, and are displaying a willing readiness to adapt themselves to war conditions. In many cases work that has hitherto been done by younger members of the profession must be distributed amongst those who had thought that their period of drudgery was over. The rush for the Army Medical Service has naturally involved in difficulties many public institutions. The conditions of resident appointments have been relaxed, with the result that many appointments, both as residents and as pharmacists, have been filled by people of far more than the usual age, or by women. But these changes may be regarded as temporary. It is to be anticipated that, when the war is over, those who have been serving abroad, and who desire to return to their former sphere of work, will find it easy to do so.

In common fairness to those medical men who have temporarily given up their work in this country, it is essential that no steps should be taken which would place them at a disadvantage when the needs of the army no longer call for their services. There has been displayed a spirit of *camaraderie* by which medical men have undertaken to carry on the work of absent neighbours as though they were partners, and where such arrangements have been made general practitioners will, in all probability, speedily be able to resume their practices. There remains, however, the scarcity of medical men owing to the absorption of the youth of the nation on active service—we do not know what the measure of this scarcity may be, but we are sure it has been exaggerated. Letters have been published in the *Pharmaceutical Journal* holding out that the present affords an opportunity for pharmacists to enter the medical profession. It has been urged that special facilities should be granted to those who have already qualified as pharmacists, and the proposal seems to have culminated in active measures being taken by the Pharmaceutical Society. The writers of the letters believe that many pharmacists would enter the medical profession if the present regulations were temporarily altered, and it is suggested that, if the examinations they have already passed were allowed to rank at full value, the numbers of men in the medical profession might speedily be increased. It is stated by one contributor to the correspondence that this would benefit both the medical profession, in which there is such a scarcity of men, and the pharmaceutical profession, which is suffering in some districts from an unmistakable plethora. It is not pointed out in what way members of the medical profession are to be benefited by finding their numbers largely increased when they return from active service. Perhaps the idea is that with greater competition there may be less work for each individual, but this may not produce a living wage without strenuous effort and much anxiety.

The concessions suggested for pharmacists are: (1) Exemption from the Preliminary Examination and from matriculation; (2) exemption from chemistry and botany in the First Professional Examination; and (3) exemption from materia medica and pharmacy in the Second Professional Examination. While the movement was confined to correspondence it was right to take no notice of it, even though it was urged that chemists' associations throughout the country should get up a petition to the Pharmaceutical Society asking the Council to approach the medical

or Government authorities with a view to modifying the curriculum. The question, however, has now been crystallised by a letter to the Registrar of the General Medical Council, officially addressed to him by the direction of the President of the Pharmaceutical Society. This letter definitely asks that qualified pharmacists may be excused the Preliminary Medical Examination and such parts of the qualifying examination as are included in the subjects which pharmacists have to pass in order to qualify under the Pharmacy Acts. It would seem to be somewhat unlikely that much sympathy will be shown by the General Medical Council towards this relaxation of medical examinations, while it is highly improbable that any of the aspirants for medical qualifications could be qualified in time to take active service in the army during the war. If they are unable to help the nation in this way, it would seem that the only benefit resulting from any compliance with their requests would be a benefit to the individual pharmacists concerned; while, on the other hand, medical men now serving at the front might, within a few years, find the ranks of the medical profession inconveniently crowded. We have no desire to oppose the entrance of pharmacists to our ranks. There are already numerous instances of medical men who have attained professional eminence after having steadily gone through the full course of study of both departments; but this should not lead to any hasty alteration of a curriculum which has been gradually and carefully evolved with such great benefit to scientific medicine. While we are sure that the General Medical Council will not be influenced by the spirit of antagonism recently displayed towards it by some of the members of the Pharmaceutical Society, we trust that the reply given will be firm, judicious, and unmistakable in its purport.

Chlorine Poisoning.

THERE remains little doubt that the gas employed by the Germans against our soldiers in the trenches was chlorine. The evidence of the newspapers and the descriptions of the sufferings of the "gassed" pointed, as we said in our issue of May 1st, to one conclusion—namely, that chlorine was the disastrous agent used. Chlorine is cheap, can be preserved in liquid form, or generated from bleaching-powder cubes, and as it is nearly two and a half times as heavy as the air it is capable of manipulation. Investigations have now been conducted on the bodies of the victims, and the observations made coincide closely with those recorded from time to time in industrial cases of chlorine poisoning. The following case, given in Dr. WITTHAUS'S "Manual of Toxicology," sets out, for example, a train of symptoms which are typical and which show a remarkable accordance with the symptoms displayed by the poisoned victims at Ypres. The patient described by Dr. WITTHAUS had inhaled a small quantity of the pure gas. He immediately experienced an inclination to cough, and complained of dyspnœa and a stabbing pain in the chest, which continued through the evening and became still worse the next morning when the dyspnœa was intense, and coughing was almost uninterrupted. The patient was greatly excited and spoke only with difficulty. The heart impulse was not perceptible, but the heart sounds were clear. Sibilant râles were heard, particularly to the right and above. The face was cyanosed. The dyspnœa now increased markedly, every respiratory muscle was called into play, the movements of respiration were short, there was cyanosis, and the pulse was very frequent and small. The patient slept occasionally for half an hour, woke struggling, the pulse became imperceptible, there were râles in the throat, and he died about 48 hours after the inhalation. There need be no question as to whether the Germans appreciated the horrible fate to which they were condemning the victims of chlorine inhalation—the tortures of the death were common knowledge.

Chlorine and its compounds appear to result in the formation of hydrochloric acid in contact with the moist mucous membranes, and the symptoms are generally a sensation of suffocation, difficulty of breathing, and lacrymation. The gas severely attacks the respiratory organs, bronchial catarrh, inflammation of the lungs with frothy blood-stained expectoration supervening. Apart from the method of pouring chlorine gas into the air intended to travel in the direction of the opposing forces, the Germans have apparently contrived to despatch the gas by means of shells, and one officer's experience of the bursting of these outrageous missiles is of interest as confirming the effects recorded in cases of industrial poisoning. On the bursting of these shells, he states, a green gas was developed, and before he and his comrades had a chance of moving they were inhaling the poisonous gas and a moment later they were struggling terribly for breath. Two of the men died before his eyes, which afforded a horrible sight, "for they had turned quite blue." He escaped with others owing, he thought, to the fact that they had stuffed their handkerchiefs into their mouths. They felt at the time, however, that suffocation was inevitable, and afterwards they experienced the discomforts which follow an attack of bronchitis in its most virulent form. He had no doubt at all, in his own mind, that the gas in the shells and the curtain of "creeping gas" were of the same nature. It is generally stated that chlorine gas in the proportion of as little as 0·04 to 0·06 per 1000 taken into the lungs is dangerous to life, and the effects, for all intents and purposes, are much the same as those of hydrochloric acid gas. But of course the formation of hydrochloric acid due to chlorine acting upon moist membranes means that it is present in the nascent form, in which form it is far more active—that is to say destructive.

The question of replying to this new and revolting form of warfare by similar application to the forces and resources of chemistry has been freely discussed. Chlorine is certainly as available for the Allies as for Germany, but the method is full of uncertainties, particularly when the letting loose of the gas into air currents calculated to reach the enemy is relied upon. Already it has been reported that the German calculations sometimes failed and that the attacking party received the gas by return currents. The method at any rate can only have relatively local effects, and its success has been much due to the surprise and terror which it momentarily caused. If the Allies decide to retaliate, as they have every right to do, they may be depended to improve on the infamous example set them. This country possesses enormous resources in regard to the manufacture of chlorine and its compounds. This is seen in the fact that while England produces about 200,000 tons of bleaching powder (the chief reservoir of chlorine output), France produces 60,000 tons, and Germany 100,000 tons. But at the present time ingenuity is being exercised only for defensive purposes. The distribution of chlorine in explosive shells may offer a serious problem unless effective means are found to ward off attacks by means of "anti-chlor" saturated respirators. Of the numerous "anti-chlors" available hyposulphite of soda is the best; the respirators found on captured German soldiers proved to be moistened with hyposulphite, confirming the conclusion that the gas used was chlorine. Next to hyposulphite common carbonate of soda is most efficacious. Failing these the respirator moistened with water would undoubtedly serve to reduce the severity of the attack. The Germans have probably employed liquid chlorine, of which they make large quantities in steel cylinders for industrial purposes. It is used for displacing bromine from the bromide liquors of the Stassfurt mines, and for the production of chloracetic acid, which is essential in the synthetic preparations of artificial indigo. The use of chlorine gas as an offensive weapon is new; its employment as a defensive weapon in the sterilisation of water for drinking purposes has for some time been recognised as effective. Civilised nations will agree, in the name of humanity, that its powers to destroy should be confined to low organisms. It may be suggested that just as war is war, so chemistry is chemistry, and that the use of one disastrous chemical agent is no more morally wrong than the use of another. Yet we must all feel that there is a vast difference between the skill of arms and the skill of the poisoner.

UNIVERSITY OF SHEFFIELD.—The Council, at its last meeting, appointed Mr. J. Sholto C. Douglas, M.A., D.M., B.Ch. Oxon., M.Sc. Birm., to the John Hunter chair of pathology, in succession to Professor H. R. Dean. Dr. Douglas is at present lecturer on pathology in the University of Manchester.

Annotations.

"Ne quid nimis."

THE SINKING OF THE "LUSITANIA": FATE OF MADAME DEPAGE.

THE sinking of the *Lusitania* is universally accepted as the crowning infamy in the German conduct of the war up to the date of its occurrence. The crime has been received with a chorus of horror throughout the world. True, when analysed, the deed is no baser than the murder of unfortunate fishermen in the North Sea, than the use of virulent gases in the trenches, or than the deliberate assassination of wounded prisoners—all of which proceedings we learn from authentic reports have marked the conduct of the war by the Germans during the recent weeks. Yet the cynicism of an action which condemned in a moment helpless women and children in crowds to a terrible death has impressed civilisation more than any other of the horrors which have followed upon the frequent breaches of international convention during the war. But the impression has not been that which presumably the Germans expected; disgust and resolute anger have been aroused, not shuddering fear.

To many of the medical profession the tragic fate of the *Lusitania* has a particular sadness, because one of the ill-starred passengers was Madame Depage, of Brussels. The deepest feelings of sympathy will be extended to Professor Depage on the tragic death of his wife. Madame Depage was on her way back from a tour in the United States to obtain funds for wounded Belgians in the Depage Hospital at La Panne. The generous mission was devotedly undertaken at great personal sacrifice, and now that it has ended in death a sense of personal grief will be experienced by the many friends in England whom she had so often welcomed at her house in the Avenue Louise, Brussels. The members of the Société Internationale de Chirurgie will, we are sure, not quickly forget her graciousness as a hostess, her wonderful power of organisation, her gaiety, her great linguistic powers, and the tact which enabled her to harmonise the clashing interests of a polyglot assembly. Last year she accompanied Professor Depage to the United States as the wife of the President of the Société Internationale de Chirurgie; and no better suppliant with the American people on behalf of Belgium could have been found. Bravely she left her husband and her children out of love of her stricken nation, and she has died in her country's cause.

THE SPIRIT DUTIES.

THE drastic proposals of the Chancellor of the Exchequer in regard to levying additional duties on wines and spirits have been withdrawn, and the suggestion we made in our columns three weeks ago has been adopted in principle. This was that the sale of immature spirits should be stopped by a system of compulsory bonding. Time is to be given to the industry to find the accommodation necessary for storage. Spirits up to two years will be compulsorily bonded, and a surtax is suggested to be levied on all spirits taken out of bond between two and three years of age. After that time it may be presumed that no surtax will be charged. The

wine duties are not to be raised. There is to be a State control of all licensed houses in munition areas, and for this purpose a central board has been created composed of representatives of the Admiralty, War Office, and Home Office. On the whole a wise compromise has been reached and the proposals promise to offer a satisfactory settlement. They should remove, also, all anxiety as to the spirit used for medicinal purposes being further taxed.

NOTABLE REDUCTION OF TYPHOID FEVER IN ITALY.

IT is only of late years that Italy has begun to apply large measures of sanitation to her whole united population. To many of us, accustomed to the better hygienic environment of our own country, residence in Italy has always caused anxiety, especially in regard to the possibility of contracting typhoid fever, and in some places this anxiety has been justified. But recently Italy has been very literally setting her house in order, and the risks of typhoid fever have much abated. We are just now more concerned for the possible fighting strength of the Italian army than for the security of the rare tourists of our own nationality who may be in Italy, but on both accounts it is good to learn of the general improvement in public health indicated by the decline in frequency of typhoid fever. The fighting strength of an army is naturally enhanced if it is recruited from healthy material. When the troops come from towns and villages where typhoid epidemics are frequent there is a greater danger that the army itself will be infected. This is often left out of calculation, the health of those with the colours being considered as though it can be independent of the conditions where the levies are raised. In Italy financial facilities for public health works, such as water-supply and drainage, have been greatly accelerated by the Public Health Acts of July 13th, 1905, and June 25th, 1911. It is especially in respect to small and poor districts that the State guarantees the interest on the money borrowed for sanitary purposes. Thus from July, 1905, to July, 1911, no less than 337 districts or communes received State aid for their water-supply works. During the same period 763 communes obtained financial aid for other public health undertakings, such as the building of isolation hospitals, improved drainage, &c. The result has been specially noticeable in regard to the prevalence of typhoid fever. Professor Santoliquido is responsible for the following figures. The cases of typhoid fever notified in 1888 amounted to 59,631, and there were 23,869 deaths; but in 1912 the number of cases was reduced to 30,558 and deaths to 7743. This means that whereas in 1888 there were 800 deaths from typhoid fever out of every million inhabitants, the proportion per million was only 221 in 1912. Of course, it may be said that these were exceptional years, and to a certain extent this is true, because they represent the highest and the lowest figure. Nevertheless, the reduction, while showing certain fluctuations, has been persistent. Thus the fall was gradual from 1880 to 1894, when the proportion of deaths per million of the population was only 439; but it rose again the following two years to 498, then to 520. In 1897 it was 491, and the year following 545. After that the figure never again attained to 500; and after the year 1900 it was always below 400. Finally, after the year 1905 the proportion of deaths from typhoid fever has always been below 300 per 1,000,000 inhabitants. We have therefore good reason to hope that the prevalence of typhoid fever has been definitely reduced by about two-thirds. This is no mean achievement, and the Italian authorities are to be congratulated.

UNUSUAL SYMPTOMS DUE TO GALL-STONES.

IN another column we publish an interesting note on a case of gall-stones described by Dr. A. R. Neligan. The usual symptomatology of cholelithiasis is generally recognised, such as paroxysmal pain, vomiting, collapse, jaundice, and the presence of gall-stones in the motions, to which may be added the occurrence of ague-like attacks. During an attack of biliary colic the contents of the stomach are first vomited, and bile may also be present, but it is only in very rare instances that a calculus is vomited. In Dr. Neligan's case, however, a number of faceted gall-stones were found (about 30) in the vomit. We have been unable to find a similar record. In addition, the patient suffered from intestinal obstruction; an operation was recommended but refused, and after the administration of enemata she passed some flatus, liquid fæces, and a hard mass which subsequently proved to be a gall-stone. Unfortunately it was broken up before Dr. Neligan saw it, but apparently it must have been roughly round in shape and 3 centimetres in diameter, and must have weighed about 16 grammes. Mechanical obstruction of the intestines by a gall-stone is also uncommon, but many cases have been reported. Morestin[1] was able to refer to as many as 242 cases. Dr. H. D. Rolleston[2] states that the relative frequency of this cause to other causes of intestinal obstruction has been variously estimated at from 1 to 13 to 1 to 45. The occurrence of two unusual symptoms in the same patient—viz., the vomit of many gall-stones and the obstruction of the bowel by one such stone—is certainly remarkable, making the record of the case exceptionally interesting.

RADIOLOGICAL STUDIES OF THE LARGE INTESTINE.

Dr. A. E. Barclay, whose work on the alimentary tract is well known, contributes some interesting observations to the symposium on intestinal stasis in the current number of the *British Journal of Surgery*. Constipation is due less, he considers, to Lane's intestinal kinks than to an absence of what he terms *points d'appui*, from which, as fixed points, the mass movements of the fæces can be urged forward. These *points d'appui* appear to be variable in their site—they are never seen in the cæcum itself; more commonly such a point is found in the neighbourhood of the hepatic flexure. Under the X rays the mass is found to be pushed forward from the fixed point. Failure of such fixed points leads to inability of the large intestine mechanically to propel forwards, in the abrupt occasional and brief manner now recognised as typical, the fæcal mass. The "cesspool," or loaded cæcum, under this view must be regarded less as the cause than the effect of such inefficient propelling action. This organ, in fact, is suggested to be little concerned in the propulsive action; it is often found to contain bismuth for a long time subsequent to its administration; it is not cleared out so effectively as are other parts within

[1] Bulletin de la Société Anatomique de Paris, 1900.
[2] Diseases of the Liver, 1905.

the sphere of the massed movements. Possibly the cæcum has a separate mechanism for mixing the contents and feeding them into the ascending colon preparatory to the occurrence of the mass movement. The significance of incompetence of the ileocæcal valve, a condition which Dr. Barclay confirms in his own observations in relation to chronic constipation, is not touched upon here. Not all cases of constipation are due to those motor disturbances of the large intestine thus described. Whilst stagnation of fæces in these cases is met with in the cæcum, the larger class of cases of constipation are due to stagnation in the rectum, a condition termed by Hertz "dyschezia." This is, however, a fault of defæcation rather than a true constipation. Dealing with the X ray findings in cases of neoplasm of the large intestine, the opaque enema is recommended in preference to oral administration. By the latter method it is only when the growth is very far advanced that definite banking up of the shadow behind the growth appears; generally, too, the head of the shadow seldom reaches the obstruction itself, suggesting hypertonicity of the colon above the site.

THE INEBRIATES ACT IN 1913.

IN submitting his report for 1913, with regard to institutions certified or licensed under the Inebriates Acts, 1879 to 1900, Dr. R. Welsh Branthwaite explains that owing to the pressure of other work both before and after the war he has been unable to incorporate observations on the medical aspects of inebriety in continuation of remarks made in a previous report. The report is therefore confined to the usual statistics relating to inmates of inebriate reformatories and retreats. As the total number of persons treated in these institutions has not been large many of the tables do not refer only to 1913, the year specially dealt with, but contain corresponding figures for each year since 1899, when the Act of 1898 came into force. Many of these are of interest, but attention may be specially called to one of them, because at the present time two topics upon which it has a more or less direct bearing are arresting public attention. It will be found that during the period included in the report, 1899 to 1913, there were in all 586 persons committed to certified inebriate reformatories for offences dealt with under Section 1 of the Act of 1898—that is to say from assizes and sessions. The nature of these offences is specified in the report, and it will be found that comparatively few involved conduct of the kind commonly regarded as seriously criminal in character. Only 47 persons in all were convicted of larceny, stealing and receiving, and 44 of attempted suicide, 13 of assault, and 7 of malicious wounding. In this connexion it is necessary, perhaps, to suggest that a very large number of serious offences due to inebriety are not so looked upon in the courts, but are punished in the usual way by imprisonment, without attempt at reformatory treatment. The one offence, however, which appears to be specially selected to be dealt with under the section mentioned is that of unlawfully neglecting children in a manner likely to cause them unnecessary suffering. Out of the 586 committals to inebriate reformatories referred to 459 were for offences of this kind, and as only 57 were men it will be seen that drunken mothers who neglect their children constitute a very large proportion of the persons sought to be reformed under Section 1. The "drink question" has been made prominent recently by delay alleged to be caused by intemperance in the production of munitions of war, and the figures cited above show a particular aspect of the effect likely to be produced by inebriety upon the rearing of a healthy generation of children, to compensate for the ghastly destruction of human life which the war is causing, and for the diminished birth-rate which may be expected in future years.

INJURIES OF THE PERIPHERAL NERVES.

INJURIES to the peripheral nerves are extremely common in warfare, and at the same time they form a class of case in which early and expert treatment is essential if the best results are to be obtained. At its meeting of March 4th the Société de Neurologie of Paris passed a resolution, which was forwarded to the French Minister of War, pointing out the extreme desirability of avoiding delay in transporting those with nerve injuries, and injuries of the nervous system generally, to the special neurological hospitals of Paris and elsewhere, since successful treatment depends on the care and minuteness with which the preliminary neurological investigation of such cases is prosecuted. The society points out how frequently the special hospitals are asked to take cases of traumatic neuritis in which, as the result of delay, fibro-tendinous retractions, sub-ankyloses, and other complications have supervened, which often prove rebellious to treatment. From a later number of the *Presse Médicale* we learn that improvement has taken place and that special neurological services have been established in connexion with various of the army hospitals. Similar utilisation of the expert neurological opinion of this country should be organised to its fullest extent, to obviate unsatisfactory results in cases treated originally, owing to stress of time and other circumstances, in an incomplete fashion. The French medical journals have contained a number of useful contributions to the study and treatment of traumatic lesions of the peripheral nerves. Among these may be mentioned a paper by M. Temoin, read before the Société de Chirurgie, emphasising the necessity of a complete motor, sensory, and electrical examination in all cases of peripheral nerve injury, to facilitate early and successful surgical intervention. M. Claude has given to the Académie de Médecine the results of 100 cases of peripheral nerve lesions operated on, and in the *Presse Médicale* of March 4th, with M. Vigouroux and M. Dumas, he records the results in a further series of 100 cases. All of these were examined by neurologists clinically and electrically before operation, and after operation they were given suitable secondary treatment. In a series of 56 cases there were 7 of complete section of a nerve trunk with separation of the ends, in 12 the nerve was cut across but the ends were together, in a fibrous development, in 21 the section was incomplete, 3 showed induration without section, and in 13 the nerve was compressed by perineural sclerosis. Apart from the complete sections, where improvement is a question of time mainly, in no fewer than 87 per cent. the result of surgical interference was amelioration of symptoms. In another series of 46 cases, improvement was obtained in 74 per cent. The paper contains useful hints for the surgeon. Another communication of interest appears in the *Presse Médicale* of March 18th from the service of Professor Pierre Marie at

the Salpêtrière. Professor Marie gives a full description of an unusual variety of traumatic lesion of the median nerve, in which the symptoms are mainly sensory, the motor symptoms being slight. Instead of holding his hand in the characteristic position of median palsy, the patient keeps his fingers extended, sometimes the terminal phalanges are hyperextended, the thumb is in slight opposition. There is a fine tremor of the three radial fingers, and marked trophic and vaso-motor changes in the median distribution are always observable. The hand is warmer than its fellow, but, above all, it is "*atrocement douloureuse.*" The maximum pain is in the pulp of the affected fingers and their nails; whatever be the site of the lesion in the nerve trunk this is the distribution of the pain. Dry heat always aggravates the condition, hence the patients cover their hand in cold, wet dressings, and keep renewing them themselves. So insignificant a stimulus as a cough increases the pain at once, and in three cases it was noted that grasping, with the sound hand, a warm object induced an exacerbation of the pain on the affected side. A yawn, a sneeze, even simple emotions such as seeing a fellow patient slip on a polished floor, a sudden noise, music, looking at a touching or an amusing picture, are all mentioned by Professor Marie as aggravating the neuralgia. Objective sensory changes are confined mainly to the tactile form. There is also a slight wasting of the muscles concerned, but, as already observed, never a pronounced paralysis. The pathological condition is probably one of traumatic ascending neuritis of the nerve, and operative treatment has not, in Professor Marie's experience, been very satisfactory. He makes the interesting observation that the musculo-spiral, ulnar, and median seem to vary somewhat in their reaction to injury; in the case of the musculo-spiral, the chief symptoms are paralysis, and there is little sensory change; in the case of the ulnar, with a traumatic main-en-griffe, there are few, if any, trophic and vaso-motor changes; while with the median the motor defects are secondary and, in some cases at least, pain and vaso-motor phenomena are extremely pronounced.

RUPTURE OF THE EXTENSOR LONGUS POLLICIS.

Dr. J. Ramsay Hunt has recorded in a recent issue of the *Journal of the American Medical Association* a case of a very rare injury—rupture of the tendon of the extensor longus pollicis. The patient was a tailor, aged 31 years, who worked from 10 to 12 hours daily, much of the time sewing with a coarse, heavy needle. He also used an iron for pressing clothes. On Oct. 25th, 1914, after a day's work, he inserted his right hand into his trousers pocket in search of some object, twisting the hand about as one does in trying to explore angles and recesses. He was seized with severe pain over the posterior surface of the wrist on the radial side and over the back of the first metacarpal bone. On removing his hand he could not extend the distal phalanx of the thumb, though he could easily flex it. For several days there was great pain over the dorsal surface of the wrist and first metacarpal bone, and for a fortnight this region was tender and showed some swelling. On examination on Dec. 1st there was paralysis of the extensor longus pollicis. The patient could strongly flex the distal phalanx of the thumb, but had not the least power of extension. In contrast there was fair power to extend the proximal phalanx and first metacarpal bone. When the tendons of the thumb were rendered prominent by strong extension the normal prominence of the extensor longus pollicis was absent. When the finger was drawn along the course of the long extensor there could be felt just below the posterior annular ligament a small movable rounded slightly tender swelling. This corresponded to the distal end of the ruptured tendon. The proximal end was not palpable. Electrical examination failed to elicit any response in the extensor longus pollicis, while all the other muscles reacted normally. The sensibility of the hand was normal. Suture of the tendon was recommended but declined. Normal tendons are so strong that rupture is almost impossible. In the case of severe strains either the muscle tears or the periosteal insertion of the tendon gives way, often carrying a fragment of bone. For a tendon to rupture it must have been previously weakened by disease. While rupture of the extensor longus pollicis is very rare in medical literature generally it has been well known to German military surgeons for a long time. In the medical reports of the Prussian army from 1870 to 1904 von Wurthenau collected 62 cases, all in drummers. The condition is the result of chronic tenosynovitis induced by a peculiar method of holding and using the left drumstick, which causes mechanical irritation of the tendon as it emerges from its compartment in the posterior annular ligament of the wrist. In time changes take place in the tendon and its sheath and eventually rupture occurs, either during a paroxysm of drumming or more rarely spontaneously. It is said that the affection occurs usually in beginners and exclusively on the left side. Microscopic examination of the severed tendons has shown hyaline swelling and necrosis and separation of the tendon fibres. Dr. Hunt thinks that in the case of the tailor there must have been similar changes in the tendon. It is curious that no warning pain seems to have been observed in any of the cases. But though rupture may occur painlessly, more frequently a piercing pain is felt over the back of the wrist, often shooting up the forearm. The tendon may be swollen and tender and the distal portion is often felt below the annular ligament as a tender movable nodule. Isolated instances of the lesion have been recorded in a compositor, a wood-carver, a farmer, and in waiters. As to treatment, if there is no evidence of union after a brief period of fixation, suture should be performed.

THE Croonian lectures will be delivered at the Royal College of Physicians of London on June 17th, 22nd, 24th, and 29th, at 5 P.M., by Surgeon-General Sir David Bruce, C.B., F.R.S., A.M.S. The subject will be Trypanosomes causing Disease in Man and Domestic Animals in Central Africa.

THE Progress of Public Health in Egypt is the subject which Dr. F. M. Sandwith has chosen for his course of four Gresham lectures to be delivered at the Gresham College, Basinghall-street, E.C., on May 18th, 19th, 20th, and 21st, at 6 P.M. The lectures will have a topical bearing.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Colloidal Gold in the Treatment of Infected Wounds.

M. Cunéo and M. Polland have been using colloidal gold in a whole series of infected traumatisms in which the phenomena of infection persisted in spite of the usual surgical measures. The gold was injected intravenously, intramuscularly, or hypodermically in the peripheral zone of the infected region. The clearest and most valuable results have been obtained in large wounds of limbs with infection by anaerobic microbes. In these cases a marked fall of temperature ensues, together with considerable diminution in the number and quality of pulsations and a return towards normal of the arterial pressure. Local modifications may also be observed in the wound; a diminution of the fœtid odour and secretion and attenuation of the œdema. These latter phenomena are even more influenced by local injections of colloidal gold. In penetrating wounds of the abdomen medically treated the authors have used this remedy as a preventive measure. In pyogenous infections the results of injections of colloidal gold have been less clear, perhaps because the authors have been led to employ them more in cases of infection of the serous membranes, where a local reaction sufficient to stop the processes of suppuration was not to be expected. The intravascular injections are followed by violent reaction; a severe rigor may last for 40 minutes. Sometimes the countenance becomes slightly cyanosed, the temperature rises, and the pulse is quickened. An abundant perspiration sets in later and may last sometimes several hours. When given intramuscularly colloidal gold gives rise to no reaction. It may be injected by this route up to 50 c.c. at a single time and several days in succession. Used thus the gold has a mode of action milder but also slower than that by the intravascular route. These injections may be also made by means of a long needle around the limits of the infected tissue, avoiding the vessels so as not to provoke by the entrance of some drops of the liquid directly into the blood the violent reaction of an intravenous injection. Intravenous injection is definitely indicated only where rapid effect is sought. In individuals with lowered tension recourse had better be had, at first at any rate, to the intramuscular route. Injections around the wound are especially indicated when a local action is desired.

Conservative versus *Radical Operations in the Surgery of the Limbs.*

M. Mauclaire has reported to the Société de Chirurgie on the work of Dr. Lapointe, who between Oct. 26th and Feb. 7th was at the front on medical duty, ten miles from the firing line. Here he saw more than 4000 wounded pass through his ambulance, and close on 800 operations were done, nearly all by himself. Out of this number, 547 presented fractures, crushings, and lacerations (*arrachements*) of the limbs. In the upper limb, out of 317 wounded 145 that were not operated on gave 9 deaths; out of 172 operated on, 104 by conservative operations gave 34 deaths, 68 by radical operations 11 deaths, or a total of 54 deaths. In the lower limb, out of 228 wounded, 90 not operated on gave 11 deaths; out of 138 operated on, 75 conservative operations gave 34 deaths, while 63 mutilating operations gave 28 deaths, or a total of 73 deaths. In the upper limb among the radical operations performed there were 68, with 11 deaths, or a mortality of 16 per cent. Three disarticulations of the wrist, 5 amputations of the forearm, 2 disarticulations of the elbow, all primary, had no deaths. Out of 42 amputations of the arm there were 6 deaths, of which 2 out of 33 primary amputations and 4 out of 9 secondary, 16 disarticulations of the shoulder gave 5 deaths, of which 2 out of 12 primary disarticulations and 3 out of 4 secondary disarticulations. Total, 4 deaths out of 55 primary radical operations, and 7 deaths out of 13 secondary. In the lower limb 65 mutilations out of 63 wounded, with 28 deaths, mortality 43 per cent. Three economic operations on the foot gave 3 cures; 21 amputations of the leg gave 5 deaths, of which 3 were in 17 primary and 2 in 4 secondary amputations; 40 amputations of the thigh gave 22 deaths (or 55 per cent.), of which 12 occurred in 25 primary and 10 in 15 secondary amputations. One primary disarticulation of the hip was followed by death. Nearly all the amputations were done by the circular method. For the disarticulation of the shoulder and for some high amputations of the arm and the leg, M. Lapointe employed "racket" amputation. He left the greater part of the stumps uncovered, because most of the wounds at the time of arrival at the ambulance were very seriously infected. For the sterilisation of instruments and gloves M. Lapointe employs sodium borate. The site of operation and the dressings have been treated in the same method up to the day when M. Lapointe was able to procure trioxymethylene and to prepare dry dressings instead. He has used oxygenated water, permanganate of potash, formol solution, 5 per 1000, and tincture of iodine.

Death of Dr. Thoinot.

Dr. Thoinot, professor of legal medicine at the Faculté de Médecine, and a member of the Académie de Médecine, has died very suddenly. In 1906 he succeeded his teacher, Brouardel, in the professorial chair. He was physician to the Hôpital Laennec, and from the beginning of the war médecin principal at the Val-de-Grâce and head of the service of contagious diseases. His writings are of importance, while as an expert he was highly esteemed in the judicial world, and his medico-legal work had gained for him an international reputation.

May 8th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

An Association of "Medical Advisers."

A NUMBER of the "medical advisers" and "certifiers" of the Irish Insurance Commission met in Dublin last week to form an organisation in defence of their interests. Having elected officers and a committee, they passed a resolution declaring their wish to assist in a settlement of the certification question, provided their own interests were safeguarded. It is generally thought that the present system of certification is about to be abandoned.

The Medical Profession and the War.

A committee has been appointed by the medical profession in Belfast (*a*) to make arrangements for looking after the practices of those who may become whole-time medical officers under the R.A.M.C., and (*b*) to form a list of practitioners willing to serve as whole-time officers for a short period.—At a meeting of the board of management of the Benn Ulster Eye, Ear, and Throat Hospital, held in Belfast on May 6th, it was decided to allow Dr. I. A. Davidson and

Dr. W. A. Anderson leave of absence for one year, they having offered their services to the War Office, and to keep their positions open for them. As a result the out-patient department will be open only three days a week.

LUNACY IN EGYPT.

THE FINAL REPORT FOR THE YEAR 1914.

RECENTLY we reviewed the delayed reports of 1912 and 1913[1] dealing with lunacy in Egypt, and now we have the final report of 1914 before us. As in Dr. J. Warnock's previous reports, we get a most complete history of the work carried on. And this has been done under trying conditions, as, owing to the death of Dr. Pearson, deputy superintendent, the administration has been short-handed. There is again complaint made that there is not sufficient accommodation for the patients, so that many have to be discharged before they are really mentally stable; hence relapses are frequent, and criminal acts are done by the unstable convalescents. In the main building at Abbassia the recent and acute cases are received, while at Khanka the more calm and chronic cases are occupied in agriculture. The report is for English readers chiefly interesting from the special causes of insanity, and for the medico-legal aspect of the partly cured patients.

Pellagra is a great cause of insanity; in fact, is given as the chief cause. Of 700 admissions, 132 were suffering from pellagrous insanity, 94 from hashish, and 40 from alcohol. General paralysis provided 41 cases. A very interesting table is the one showing the offences and forms of insanity of the 54 male accused persons, and the forms of insanity of the 21 male convicted prisoners admitted in 1914. Of the 54, 12 were suffering from pellagrous insanity, and 8 from that due to hashish. Of the 75 in whom there was a history of crime, 10 were pellagrous, and 6 of the insane from hashish were convicted of murder or murderous assaults. Every form of crime is represented by the pellagrous insane, but violence is the most common. Thirty-eight deaths were due to pellagra, but others suffering from tuberculosis had pellagra as well.

Nearly 6 per cent. of the male admissions were suffering from general paralysis, and 25 of the 125 deaths of male patients were due to the same disease. There was a slight decrease in the number of patients suffering from hashish insanity. Considering the prejudice against post-mortem examinations, it is interesting to find that 56 were performed. Dysentery was, as usual, represented, but was only responsible for nine deaths.

A pathological laboratory has been started, and as a result a special ward for observation and treatment of ankylostomiasis was opened. One hundred and ten patients were recently examined, and 29 proved to be infected; these were treated with thymol. No patient succeeded in committing suicide. A good many accidents occurred, due to violence in the overcrowded wards.

The report of Dr. H. W. Dudgeon for the Khanka Asylum is brief, but points to the steady development of the subsidiary asylum. It is also the model for a working asylum which is carried out and developing under rather trying conditions.

The Lunacy Department now being a branch of the Ministry of the Interior, and having an official head in Dr. Warnock, time and money alone are required to make the work very satisfactory as well as instructive.

[1] THE LANCET, Jan. 30th, 1915, p. 243.

SERVICE MEDICAL OFFICERS AND THE INCOME-TAX.

THERE are no doubt many medical men on war service who from one cause or another have not taken up the question of their income-tax for the past year and are not acquainted with their rights in regard to any tax that may have been paid in excess of their true liability. The service medical officer's position in regard to the income-tax is, moreover, of interest to those whose liability, though not affected for the year 1914–15, will be affected for the current year owing to the interference with their general practice. Before dealing with the matter it may be remarked that an officer who is in doubt as to the manner in which the tax that he has paid has been arrived at can obtain full particulars on application to the Surveyor of Taxes in regard to the private practice, and to the Assessor at the War Office or Admiralty in regard to official pay and allowances.

Claims for Adjustment.

The tax charged on pay and allowances is, of course, deducted by the paymaster, but unless the recipient has taken steps to ensure allowance of any relief due to him the tax will have been deducted at the full rate. The importance of taking measures to obtain any adjustment that may be due will be realised from the fact that in the case of earned incomes it is only where the total income from all sources exceeded £2500 that the full rate of 1*s.* 8*d.* for the past year was payable; on smaller incomes there was relief of 8*d.* in the £ where the total income was not more than £1000, 6*d.* where not more than £1500, 4*d.* where not more than £2000, and 1⅓*d.* where not more than £2500. In regard to this type of relief it must be observed that it is now too late to make any claim unless the officer filled in a statement of total income from all sources before Sept. 30th last, either by way of a specific claim to the "earned income" rate or in the ordinary course in making his professional return for the year 1914–15. The possibility to be guarded against is that, while relief has been allowed on the professional assessment, the reduction in the rate has not been extended to the War Office or Admiralty pay. Forms were issued to enable officers to make claims or to declare the address from which they had already claimed, and in cases where these were duly completed there is little likelihood of overcharge under this head; but it is not too late to obtain relief where an officer, having duly made his statement of total income from all sources locally, did not notify the War Office or Admiralty. The original statement will, of course, have proved inaccurate in the light of subsequent events, but it operates as a notification of claim, and an amended statement may now be put in for the purpose of obtaining repayment of any overcharge.

In this connexion there arises the question of the amount to be regarded as income from the practice for the year 1914–15 by those who for part of the year were engaged on war service. This matter was dealt with by the second Finance Act of last year. The assessment on the profits of the practice was originally made on a figure intended to represent the average profits of the three preceding years, but a special provision enacts that where a person has been serving as a member of the military or naval forces, or in any work abroad of the British Red Cross Society, St. John Ambulance Association, or any other body with similar objects, the assessment shall be reduced to the amount of the actual profits of the year and repayment of duty made where necessary. To secure this adjustment it will be necessary to submit to the Surveyor of Taxes an account of the receipts and expenses of the practice for the year 1914–15, prepared on the lines indicated in THE LANCET of April 24th, p. 878, and from that official may also be obtained the form necessary for any other repayment that may be due. In cases where the practitioner usually makes up his accounts to Dec. 31st and not to March 31st, it will be well to make an adjustment in order that full effect may be given to any falling off of receipts after Dec. 31st. This may be done by substituting the receipts in the first quarter of 1915 for those in the first quarter of 1914, and adding to the expenses of the year 1914 a sum representing the extra expense incurred by the employment of a locum-tenent for the first quarter of 1915. If it be not convenient to an officer to go fully into the matter at the

moment, he should write to the surveyor notifying his desire for any adjustment that may be due to him, to be claimed when circumstances permit. There will be many cases in which the profits of the practice for the year, with the addition of the pay, have amounted to a sum so much less than the figure originally returned for assessment, that the total income from all sources, then shown as over one of the "earned income" limits, say £1000, has fallen below that limit, with the result that a new rate of duty will apply.

In determining the amount to be regarded as income from army pay, it is not necessary to take into account the field allowances, ration money, or servants' allowances; these seem to be regarded as not subject to income-tax, presumably on the ground that they are intended to defray expenses occasioned purely by the exigencies of military life. No corresponding relief appears, however, to be allowed when a uniform rate of pay is fixed to cover such allowances. It will usually be found the most convenient course to inquire of the assessor precisely what amount has been treated as subject to income-tax for the year ended April 5th, 1915, as suggested above.

Other Forms of Relief.

There are other descriptions of relief in respect of which repayment may be claimed by those to whom they have not already been allowed—that is to say, the allowance for life assurance premiums, the abatements of £160, £150, £120, and £70 on total incomes not exceeding £400, £500, £600, and £700, the deduction of £20 for each child under 16 years of age on April 6th, 1914, allowed where the total income does not exceed £500, and the "small incomes" relief, amounting for the past year to 4*d.* in the £ on incomes not exceeding £300 and 1½*d.* in the £ on incomes not exceeding £500. The last-mentioned form of relief does not apply to income on which the "earned income" rate has been charged. In all these cases it is possible to claim repayment at any time within the next three years, but the preparation of the claim will involve the least trouble now, when the necessary figures and papers are readily available. The time-limit of three years does not apply to applications for adjustment on account of a falling-off of professional profits or non-allowance of the "earned income" rate on pay and allowances; applications of this nature should be made without delay.

The total income for income-tax purposes of a medical man who has been engaged on war service during the past year is computable as follows: the amount of the profits of his practice (or civil salary, if holding an appointment) for the year to April 5th (or March 31st) *plus* his military or naval pay and those allowances that are treated as subject to income-tax, *plus* the amount of any other taxed income that he or his wife may have. If this total fall below one of the limits referred to in this article a title has arisen to one or more of the forms of relief indicated.

MEDICINE AND THE LAW.

Dr. F. J. Waldo's Annual Report.

THE return made annually to the Common Council by the coroner for the City of London and borough of Southwark has been issued for 1914, and contains, as usual, interesting notes and suggestions upon topics arising out of inquests held by Dr. F. J. Waldo. Some of these relate to cases which have attracted public attention and might be in danger of being forgotten if the attention of a body such as the Common Council were not officially recalled to them, with the possibility that useful results may some day ensue. An example is to be found in the death of a newspaper seller outside Broad-street railway station, who was shot by a man recently released from a private lunatic asylum. The patient had been allowed to go on the condition that relatives took charge of him, and this they had failed to do, with the result that without any difficulty he bought a gun licence, a revolver, and cartridges, which he fired in the street with the fatal result mentioned. In another pistol case recorded by Dr. Waldo the deadly weapon had been bought by a boy without any need to comply with the formal provisions of the Pistols Act, 1903, because its barrel was more than 9 inches in length. The effect of this dangerous proviso in creating a trade in weapons quite as deadly as many of the shorter pistols is well known. An interesting case referred to in Dr. Waldo's report, but not one of the kind which attracts popular attention in reports of inquests, is that of a butcher named Tarrant, manager of a meat store at Mitcham, who died from cutaneous anthrax in Guy's Hospital. At the inquest it came out that a horse and a slaughterman had also died from anthrax, and that two other butchers and a clerk were suffering from it, all cases being most probably connected. The horse belonged to a wharf company and was kept in stables adjoining a slaughter-house, from which meat had been brought to the butcher's establishment at Mitcham by horses which also belonged to the wharf company. This meat was handled by Tarrant. A slaughterman in the Croydon slaughter-house had died from anthrax in Croydon General Hospital without any notification of his death reaching the Croydon coroner. The third butcher referred to was the son of Tarrant's employer, and had handled the contagious swelling on his neck, and the fourth was in the same employment but at Croydon, where he obtained meat from the same slaughter-house. A rider to the verdict at this inquest suggested that anthrax should be made compulsorily notifiable to the medical officer of health of the district in which it occurs, and that all deaths from it should be reported to the coroner. This no doubt is one of the subjects which should be remembered whenever legislation resumes its natural course, and when time permits of the amendment and codification of the law relating to the registration of deaths and to the duties of coroners.

Stevens v. *British Medical Association.*

The Court of Appeal recently heard and dismissed an application for judgment or a new trial made by the unsuccessful plaintiff in the action of Stevens *v.* The British Medical Association. The action, it will be remembered, was based upon criticism of a destructive character directed against "Stevens's Consumption Cure" and republished from the *British Medical Journal* in "Secret Remedies: What They Cost and What They Contain." Specific questions were left to the jury at the trial before Mr. Justice Shearman, and upon them judgment was given for the defendants. The Court of Appeal now delivered judgment without calling upon counsel for the British Medical Association to argue, Lord Justice Swinfen Eady saying that the question was whether upon the facts truly stated the comment was fair and such as could reasonably be made. The jury had had all the facts laid before them and their answers amounted to this, that the words complained of were not libellous because they were fair comment. In his opinion the allegation that the verdict was against the weight of evidence could not be supported, and there had been no misdirection. In his lordship's opinion the trial had been very fairly conducted. In an earlier portion of his judgment Lord Justice Swinfen Eady said that it had been already decided that words containing personal imputations upon the plaintiff might be in law "fair comment." The British Medical Association and our contemporary are to be congratulated upon a judgment which brings to a satisfactory ending the difficult and dangerous litigation involved in cases of this kind.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

Fleet Surgeon (retired) W. Hackett to Devonport Dockyard.

The undermentioned have been entered as Surgeons for temporary service in His Majesty's Fleet:—Alfred Beuthin Danby and Guy Walker Woodhouse (dated May 4th).

The following appointments have been notified:—Temporary Surgeons: H. L. P. Peregrine and S. W. Toulmin to the *Victory*, additional, for Haslar Hospital; F. A. V. Denning to the *Victory*, additional; J. A. Watson to the *President*, additional, for Eastbourne Aerodrome; A. B. Danby to the *Vivid*, additional, for Plymouth Hospital; G. W. Woodhouse to the *Pembroke*, additional, for Chatham Hospital; G. W. Pool and J. C. Gillies both to the *Victory*, additional, for Haslar Hospital; C. H. Browne to the *President*, additional; W. B. Cunningham, to the *Actæon*; R. S. Lawson to the hospital ship *Plassy*; and G. M. Fraser to the *Zealandia*.

ARMY MEDICAL SERVICE.

Temporary Major Cuthbert S. Wallace, from Royal Army Medical Corps, to be Colonel (dated April 29th).

ROYAL ARMY MEDICAL CORPS.

William George Kynaston Barnes, late Deputy-Surgeon-General, Royal Navy, to be temporary Major (dated April 16th).

Stafford Mouritz Cox to be temporary Major (dated April 19th).

The undermentioned are granted temporary rank as follows whilst serving with the War Hospitals named:—Dated April 21st: Napsbury War Hospital: Lancelot William Rolleston to be Major; Arthur O'Neill to be Captain. Springfield War Hospital: Reginald Worth to be Major; Gayton Warwick Smith to be Captain.

The undermentioned to be temporary Captains: Dated April 7th: John Davidson Duncan, late Captain, 5th Battalion, The Black Watch (Royal Highlanders), Territorial Force. Dated April 17th: George Herbert Ward-Humphreys, late Surgeon-Captain, 1st Gloucestershire Engineers, Territorial Force. Dated April 18th: Matthew Leslie Guy Hallwright. Dated April 19th: Harry Young Cameron Taylor, Charles Coley Choyce. Dated May 12th: Temporary Lieutenant Edward A. Evans, Temporary Lieutenant James A. Torrens.

The undermentioned to be temporary Lieutenants: Dated April 9th: Alexander Hugh Dickson Smith. Dated April 12th: Michael Thomas MacMahon and Captain Charles Francis White, 6th Battalion, The Cheshire Regiment. Dated April 14th: Neil Campbell, Lorne Benjamin Graham, Percy Herbert Delamere, Arthur Lincoln Thornley, Arthur Henry Priestley, James Robert Robertson, John Hay Moir, Arthur Thomson, Arthur William Hare, Alexander Mitchell Cowie, Reginald Newton Weekes, Lindsey Willett Batten, Charles Harold Walker McCullagh, Alfred Douglas Bigland, Cyril Meredith Willmott, Alexander Fisher, Joseph McGowan, and Edward Mapother. Dated April 15th: George Harold Wood, Philip Northcote Vellacott, Norman Stephen Gilchrist, Guy Budd Courtney, Frederick John Blackley, Charles Herdman Newton, Robert McCorran Service, John Porter, Frederick James Pierce, Robert John Merson, Frederick William Smith Stone, John Eills Gething, William Alexander Gordon Russell, Langford George Davies, James Hinton Robertson, Thomas Steven McIntosh, Robert Barsham Debenham, and John Caruthers Sale. Dated April 16th: John Scott. Dated April 17th: Theodore Francis Dillon, Herbert Mather Spoor, Herbert Frederick Nolan, Walter Halli Burton MacDonald, Hugh Hamilton Moffat, Alexander Waugh, Edwin Fryer, George Hellyard Darlington, Frederick George Thompson, Frank Graham Wrigley, James Hay Marshall, Arthur Leonard Weakley, Victor Jenner Batteson, and Guy Stuart Goodwin. Dated April 19th: John Rowat, Evan Lewis Hickey, James Jenkins Robb, Alphonsus McGrath, William Claude Percy Barrett, Arthur Macgregor Warwick, Bertram Ernest Wright, Crawford Smith Crichton, Thomas Leathard Wormald, William George Hopkins, Francis Charlesworth, George Stanley Applegate, Robert Macnair Walker, Arthur Herbert Butcher, Arthur Edward Druitt, Herbert Arthur Hancock, Michael Joseph Petty, Richard Kenefick, George Robertson Lipp, John William Nelson Roberts, Tom Stansfield, and Wilberforce John James Arnold. Dated April 20th: William Carnes, Gerald William Stone, Riccardo Stephens, James Clarkson Waithman, George Basil Price, and William Robert Etches. Dated April 21st: Geoffrey Ward Thompson, Henry Carter Thorp, William Arthur Shann, Cunison Charles Finlater, Ralph Paul Williams, William Peach Taylor, Norman Grellier, Hugh Stevenson Davidson, Tom Entwisle Ferguson, John Forbes, David Johnston, and James Charles Martin.

James Erlank is granted temporarily the honorary rank of Lieutenant whilst serving with the Duchess of Westminster's War Hospital (dated May 6th).

Lieutenant Reginald P. Cockin relinquishes his temporary commission (dated April 23rd). Lieutenant Charles B. Pearson, having ceased to serve with the British Red Cross Hospital, relinquishes his temporary commission (dated May 7th).

The undermentioned temporary and honorary Lieutenants are granted the temporary and honorary rank of Captain:—Dated May 7th: Lionel Edward Close Norbury, James Forbes Mackay, and James Duncan Lyle.

INDIAN MEDICAL SERVICE.

Major R. A. Lloyd relinquishes the temporary rank of Lieutenant-Colonel (dated April 15th, 1915).

SPECIAL RESERVE OF OFFICERS.

Major Charles Roberts, having ceased to perform duty with No. 18 Field Ambulance, resigns his commission. Captain Wilson Harold Percy Hey, 2nd Western General Hospital, Royal Army Medical Corps, Territorial Force, to be Captain.

The undermentioned Lieutenants to be Captains: William F. McLean, Robert M. Beath, Thomas Walker, William St. L. Dowse, William McN. Walker, William McK. H. McCullagh, Harry D. Rollinson, and Samuel R. Armstrong.

The undermentioned Lieutenants are confirmed in their rank: William T. Hare, John D. MacCormack, Henry R. Sheppard, and Donald C. Macdonald.

Supplementary to Regular Units or Corps: R.A.M.C.—Lieutenant James T. Cameron resigns his commission.

The undermentioned ex-Cadets of the Officers Training Corps to be Lieutenants (on probation): James Lawson, Norman Bell Graham, Arthur Eaton Richmond, and Geoffrey Bede Egerton. To be Lieutenants (on probation): Patrick Alexander Clements, Robert Orr Colquhoun Thomson, and William Murdoch.

TERRITORIAL FORCE.

Royal Army Medical Corps.

3rd East Anglian Field Ambulance: Captain James Turtle to be temporary Major.

2nd East Lancashire Field Ambulance: Graham Stevenson to be Lieutenant.

1st Lowland Field Ambulance: Captain John W. Leitch to be temporary Major.

2nd Northumbrian Field Ambulance: Cecil Dermot Rogers to be Lieutenant.

3rd Northumbrian Field Ambulance: Robert Raffle and John Steedman Horn to be Lieutenants.

3rd Northern General Hospital: To be Lieutenants: Balfour McKean and Robert Pringle Anderson.

3rd Southern General Hospital: William Stobie to be Lieutenant.

Sanitary Service: Arthur Hamilton Lowe to be Captain, whose services will be available on mobilisation.

Highland Casualty Clearing Station: To be Lieutenants: Joseph Ellis Milne, Charles Forbes, and Alexander Jaffrey Presslie.

5th Northern General Hospital: Lieutenant-Colonel George C. Franklin relinquishes his commission.

Eastern Mounted Brigade Field Ambulance: Vernon Montague Wallis to be Lieutenant.

1st Home Counties Field Ambulance: William Thomas Henderson to be Lieutenant.

1st Southern General Hospital: The undermentioned to be Captains, whose services will be available on mobilisation: George Percival Mills, Andrew Russell Bearn, and Arthur Augustus Russell Green. To be Lieutenant: William Albert Stokes.

2nd London Sanitary Company: To be Lieutenants: Edwin Josiah Messent, Arthur George Whitfeild, and Owen Herbert Peters.

East Anglian Casualty Clearing Station: James Mowat (late Fleet-Surgeon, Royal Navy) to be Major (temporary). To be Lieutenants: Robert Charles Standring Smith and William Joseph Deighan.

Lowland Mounted Brigade Field Ambulance: To be Lieutenants: John Richmond Herbertson, Stuart Spence Meighan, and Thomas Cameron Houston.

4th Northern General Hospital: Christopher Wilfred Sharpley to be Lieutenant.

4th Southern General Hospital: Robert Jaques to be Captain, whose services will be available on mobilisation.

Lowland Casualty Clearing Station: Major John McKie, from the 2nd Lowland Field Ambulance, to be Lieutenant-Colonel.

Northumbrian Casualty Clearing Station: Captain William Simpson, from the 1st Northumbrian Field Ambulance, to be Captain.

Highland Mounted Brigade Field Ambulance: Captain John W. Mackenzie to be temporary Major. Lieutenant Lachlan M. V. Mitchell and Lieutenant Alexander F. Lee to be temporary Captains.

Welsh Border Mounted Brigade Field Ambulance: Lieutenant Walter S. Snell resigns his commission.

Attached to Units other than Medical Units.—Lieutenant Isaac B. Bernstein resigns his commission. Lieutenant Percival T. Rutherford to be Captain. To be Lieutenants: Thomas Dobson Bell, Thomas Porter, Edmund Henri Gonin, and Edward Peter Dawes.

PROMOTION IN THE MEDICAL CORPS OF THE UNITED STATES NAVY.

The United States is considering a Bill to increase the efficiency of the personnel of the navy, and its proposals regarding the Naval Medical Corps, even if complicated, are interesting to the officers concerned and should give hope to the juniors. Medical officers are in future to be commissioned as surgeons with the rank of lieutenant (junior grade) for three years, lieutenant for nine years, and lieutenant-commander for ten years. Officers with less than 22 years' service are promoted to the higher ranks by seniority if there are vacancies for them. But if there are no vacancies, and officers of over 22 years' seniority accumulate at the top of the list and the seniority of the senior 12 averages 22 years a special system for promotion is employed. For each of these 12 a figure of merit is to be calculated, marks being assigned to each for "professional record, knowledge, and reputation," and those with the highest figures shall be promoted into the available vacancies (six, it is expected) according to seniority, the others being retired. The President, in order to make vacancies, may retire officers from each of the two highest ranks, but not more than three from each in any one year. And thus medical officers in the United States navy will get on to the administrative ranks four years or so earlier than do our medical officers, which should make the service there more efficient and the officers on the active list younger and more contented.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In the 96 English and Welsh towns with populations exceeding 50,000 persons at the last Census, 8776 births and 5383 deaths were registered during the week ended Saturday, May 8th. The annual rate of mortality in these towns, which had decreased from 19·9 to 17·3 per 1000 in the four preceding weeks, further fell in the week under notice to 15·5 per 1000 of their aggregate population, estimated at 18,134,239 persons at the middle of last year. During the first five weeks of the current quarter the mean annual death-rate in these towns averaged 17·8, against 18·8 per 1000 in London. Among the several towns the death-rate last week ranged from 6·1 in Lincoln, 7·7 in Enfield, 8·1 in Southend-on-Sea, 8·2 in Hornsey and in Smethwick, and 8·7 in Wimbledon to 23·7 in Barrow-in-Furness, 23·8 in Walsall, 24·3 in West Hartlepool, 24·5 in Wigan, and 25·2 in Middlesbrough.

The 5383 deaths from all causes were 639 fewer than in the previous week, and included 557 which were referred to the principal epidemic diseases, against 689 and 711 in the two preceding weeks. Of these 557 deaths, 276 resulted from measles, 121 from whooping-cough, 67 from infantile diarrhœal diseases, 51 from diphtheria, 30 from scarlet fever, and 12 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 1·6, or 0·4 per 1000 less than in the previous week. The deaths attributed to measles, which had been 426, 389, and 392 in the three preceding weeks, fell to 276 last week, and caused the highest annual death-rates of 2·4 in Salford, 2·8 in Sheffield, 3·1 in Tottenham and in St. Helens, 3·5 in Darlington, 4·0 in Northampton and in West Hartlepool, 4·4 in Walsall, 4·5 in Middlesbrough, and 6·3 in Barrow-in-Furness. The deaths referred to whooping-cough, which had declined from 167 to 142 in the four preceding weeks, further fell to 121 last week; the highest death-rates recorded from this cause were 1·2 in Willesden and in Walthamstow, 1·4 in South Shields, 1·7 in Reading, 2·0 in Swindon and in Aberdare, and 3·4 in Wigan. The fatal cases of diarrhœa and enteritis (among infants under 2 years), which had been 63, 65, and 73 in the three preceding weeks, fell to 67 last week, and included 17 in London, 7 in Liverpool, 5 each in Birmingham and Sheffield, and 4 in Salford The deaths attributed to diphtheria, which had been 55, 49, and 56 in the three preceding weeks, declined to 51 last week, of which 9 occurred in London and 3 in Great Yarmouth. The deaths referred to scarlet fever, which had increased from 16 to 34 in the five preceding weeks, fell to 30 last week, and included 5 in London, 3 each in Liverpool, Middlesbrough, and Newcastle-on-Tyne, and 2 each in Birmingham and Leeds. The fatal cases of enteric fever, which had been 11, 8, and 12 in the three preceding weeks, were again 12 last week, and included 6 in London.

The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had been 2422, 2369, and 2377 at the end of the three preceding weeks, had increased to 2384 on Saturday last; 307 new cases were admitted during the week, against 263, 259, and 316 in the three preceding weeks. These hospitals also contained on Saturday last 1214 cases of diphtheria, 220 of measles, 63 of enteric fever, and 14 of whooping-cough, but not one of small-pox. The 1384 deaths from all causes in London were 187 fewer than in the previous week, and corresponded to an annual death-rate of 16·0 per 1000. The deaths referred to diseases of the respiratory system, which had been 469, 392, and 346 in the three preceding weeks, further declined to 289 in the week under notice, but were 68 in excess of the number in the corresponding week of last year. The deaths from influenza numbered 20, against 39, 27, and 30 in the three preceding weeks.

Of the 5383 deaths from all causes in the 96 towns 211 resulted from different forms of violence and 398 were the subject of coroners' inquests, while 1567 occurred in public institutions. The causes of 32, or 0·6 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest. All the causes of death were duly certified in Manchester, Leeds, Bristol, West Ham, Bradford, Hull, and in 74 other smaller towns. Of the 32 uncertified causes of death, 9 were registered in Birmingham, 4 in Liverpool, and 2 each in St. Helens, Southport, Warrington, Sunderland, and South Shields.

HEALTH OF SCOTCH TOWNS.

In the 16 largest Scotch towns with an aggregate population estimated at 2,345,500 persons at the middle of this year, 1231 births and 815 deaths were registered during the week ended Saturday, May 8th. The annual rate of mortality in these towns, which had been 20·9, 18·5, and 20·2 per 1000 in the three preceding weeks, declined to 18·1 per 1000 in the week under notice. During the first five weeks of the current quarter the mean annual death-rate in these towns averaged 19·7, against a corresponding rate of 17·8 per 1000 in the large English towns. Among the several towns the death-rate last week ranged from 10·2 in Kirkcaldy, 11·7 in Leith, and 11·8 in Coatbridge, to 20·3 in Edinburgh, 20·6 in Perth, and 24·0 in Greenock.

The 815 deaths from all causes were 94 fewer than in the previous week, and included 142 which were referred to the principal epidemic diseases, against 128 and 150 in the two preceding weeks. Of these 142 deaths, 65 resulted from whooping-cough, 47 from measles, 15 from infantile diarrhœal diseases, 7 each from scarlet fever and diphtheria, and 1 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 3·2, against a corresponding rate of 1·6 per 1000 in the large English towns. The deaths attributed to whooping-cough, which had been 90, 75, and 82 in the three preceding weeks, declined to 65 last week, and included 34 in Glasgow, 10 in Edinburgh, 9 in Dundee, and 3 in Greenock. The deaths referred to measles, which had been 19, 26, and 36 in the three preceding weeks, further rose to 47 last week, of which 35 were registered in Glasgow, 7 in Aberdeen, and 2 in Clydebank. The fatal cases of diarrhœa and enteritis (among infants under 2 years), which had been 10, 12, and 9 in the three preceding weeks, rose to 15 last week, and included 6 in Glasgow and 2 each in Aberdeen and Leith. The deaths attributed to scarlet fever, which had been 7, 7, and 11 in the three preceding weeks, fell to 7 last week, and comprised 3 in Glasgow, and 2 each in Aberdeen and Paisley. The deaths referred to diphtheria, which had been 7, 6, and 12 in the three preceding weeks, fell to 7 last week, and included 2 each in Glasgow, Paisley, and Motherwell. The fatal case of enteric fever occurred in Edinburgh.

The deaths referred to diseases of the respiratory organs, which had been 178, 145, and 153 in the three preceding weeks, declined to 118 in the week under notice, but were 2 in excess of the number in the corresponding week of last year. The deaths attributed to violence numbered 23, against 30 and 25 in the two preceding weeks.

HEALTH OF IRISH TOWNS.

In the 27 town districts of Ireland, with an aggregate population estimated at 1,212,380 persons at the middle of this year, 592 births and 463 deaths were registered during the week ended Saturday, May 8th. The annual rate of mortality in these towns, which had been 22·1, 22·4, and 19·1 per 1000 in the three preceding weeks, rose to 19·9 per 1000 in the week under notice. During the first five weeks of the current quarter the mean annual death-rate in these towns averaged 21·5, against corresponding rates of 17·8 and 19·7 per 1000 in the English and Scotch towns respectively. The death-rate last week was equal to 23·7 in Dublin (against 16·0 in London and 18·4 in Glasgow), 16·7 in Belfast, 20·4 in Cork, 15·2 in Londonderry, 23·0 in Limerick, and 13·3 in Waterford, while in the 21 smaller towns the mean death-rate was 19·7 per 1000.

The 463 deaths from all causes were 19 in excess of the number in the previous week, and included 33 which were referred to the principal epidemic diseases, against 41 and 35 in the two preceding weeks. Of these 33 deaths, 10 resulted from measles, 9 each from whooping-cough and infantile diarrhœal diseases, 3 from diphtheria, and 1 each from enteric fever and scarlet fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 1·4, against corresponding rates of 1·6 and 3·2 per 1000 in the English and Scotch towns respectively. The deaths attributed to measles, which had been 5, 13, and 11 in the three preceding weeks, were 10 last week, of which 8 occurred in Belfast. The deaths referred to whooping-cough, which had been 11, 20, and 9 in the three preceding weeks, were again 9 last week, and included 5 in Dublin and 2 in Belfast. The fatal cases of diarrhœa and enteritis (among infants under 2 years), which had increased from 3 to 10 in the four preceding weeks, were 9 last week, and comprised 6 in Dublin, 2 in Belfast, and 1 in Londonderry. The 3 deaths from diphtheria occurred in Dublin, and were slightly in excess of the average in recent weeks. The fatal case of enteric fever was registered in Dublin and that of scarlet fever in Waterford.

The deaths referred to diseases of the respiratory system, which had declined from 158 to 84 in the four preceding weeks, further fell to 76 in the week under notice. Of the 463 deaths from all causes, 137, or 30 per cent., occurred in public institutions, and 6 resulted from various forms of violence. The causes of 15, or 3·2 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest; in the large English towns the proportion of uncertified causes did not exceed 0·6 per cent.

Correspondence.

"Audi alteram partem."

SANITATION IN INDIA.

To the Editor of THE LANCET.

SIR,—In your issue of March 6th a joint letter from Professor R. Tanner Hewlett, Colonel W. G. King, and Professor W. J. Simpson was published under the above heading. The responsible positions that these three gentlemen occupy in educational sanitary circles in London secure every consideration for contributions from their pen, and I am authorised to say that the Government of India are in entire agreement with the views set forth in the joint letter in question as regards the value of British Diplomas in Public Health. Indeed, in the resolution to which the writers refer it is clearly laid down that a British Diploma in Public Health is a *sine quâ non* for appointment either as a Deputy Sanitary Commissioner, or, for the present at least, as a first-class health officer. The Government of India, too, fully concur in the view that it is distinctly desirable that Indian candidates for important sanitary appointments should regard training in Great Britain as the foundation of their careers. In this connexion I may state that since 1912, 27 Indians holding British Diplomas in Public Health have been appointed to the Sanitary Department—11 as Deputy Sanitary Commissioners and 16 as first-class health officers. In these circumstances it is scarcely fair to hold the Government of India responsible for the private opinions of a Provincial Sanitary Commissioner, especially when it is borne in mind that the only evidence as to the existence of such opinions is that furnished by the unsupported statements of a disappointed candidate.

I am, Sir, yours faithfully,

P. LUKIS, M.D., F.R.C.S. (Surgeon-General),
Director-General, Indian Medical Service.

Simla, April 15th, 1915.

CEREBRO-SPINAL MENINGITIS: MENINGOCOCCI FOUND IN PERIPHERAL BLOOD FILMS.

To the Editor of THE LANCET.

SIR,—At the end of a short article under the above title in THE LANCET of April 10th I asked the question, "Are the organisms to be commonly found in films made from the peripheral blood in cases of cerebro-spinal fever, and is this a practical method of diagnosis, or are the meningococci only to be found in the septicæmic type of the disease?"

In view of the frequent inquiries I receive from various correspondents, I think it would save some confusion if I now tried to answer that question. 1. Sir William Osler kindly wrote: "I was very much interested in the figures in your paper in to-day's LANCET, as the first demonstration of the meningococci in the blood was made in my wards. We never had a case with so many in the leucocytes, as shown in your Figures 4, 5, and 6. On several occasions we got the cultures when it was difficult to find the organisms by simple staining." 2. Dr. Mary Williams, judging from her letters in the *British Medical Journal* of April 3rd and THE LANCET of April 17th, seems to have been exceptionally fortunate. She says: "I found the germ in 80 consecutive cases, and found it more readily in this manner than from the throat. ..... If there were any symptoms showing involvement of the nervous system, we found the germ in the blood. ..... We had cases of every degree of severity—from a man who started with agonising pain in the head and was dead in a few hours to cases in which diarrhœa, giddiness, and malaise of a slight degree were the only symptoms. ..... In many cases the latter (meningococci) were in the leucocytes. ..... In blood the meningococci I have seen often have a capsule. ..... Personally I believe this to be the method of diagnosis which will shortly be widely adopted." 3. I have heard from two or three bacteriologists, who all state they have entirely failed to find the organisms in the blood of any of the cases they have examined. 4. Thanks to Dr. A. D. Edwards, medical officer of health of Bournemouth, I have had an opportunity of examining films made from ear or finger blood of six undoubted cases of cerebro-spinal fever. One of these was a fulminating, rapidly fatal one. After a prolonged and careful search of these films I have been quite unable to recognise any meningococci, either free or intracellular in position, in any of these. The only case in which I found the organism is the one described and that was an intensely septicæmic type. The patient had "a purpuric rash on the brow and face," and later on extravasation of blood on the trunk. I should think that meningococci could have been found in the blood taken from any part of the body, but what I did notice casually at the time was that when I pricked the lobe of the left ear it felt firm, and somewhat indurated, and it might even have been the seat of the purpuric rash, or even an area in which there was extravasation of blood, but the ward was somewhat dimly lighted and I did not observe this. However, it occurred to me afterwards that it would be a good plan to make the film from the blood taken from a spot of the rash. I therefore wrote to Dr. Edwards: "Please do not trouble to send me any more films from cases of cerebro-spinal fever, unless you happen to meet with another of the septicæmic type. It might, in future, be worth while taking the blood from a spot should the rash be present, just as is done in making cultures from the blood of the rose-coloured spots in the case of typhoid fever."

I think we may, therefore, conclude: 1. That meningococci may be occasionally found in the peripheral blood, but only in rare cases. 2. That this method of examination cannot be used as a means of diagnosis. 3. That Dr. Mary Williams's remarkably successful results have not been obtained by other observers during the present epidemic.

I am, Sir, yours faithfully,

Bournemouth, May 6th, 1915. ALFRED C. COLES.

THE BALNEOLOGICAL COMMITTEE OF THE ROYAL SOCIETY OF MEDICINE AND ITS METHODS.

To the Editor of THE LANCET.

SIR,—Early in February of this year I received a letter from the secretaries of the above recently formed committee—Dr. R. Fortescue Fox and Dr. J. Campbell McClure—intimating the formation of the committee, on the suggestion of the War Office, to collect information and give advice to the War Office regarding "the scientific distribution of wounded soldiers among the British health resorts." In accordance with the request made I furnished a preliminary

report on the nature of the establishment of which I am the medical superintendent, and an account of the facilities as regards baths and physiotherapy available. On Feb. 22nd I received a further letter intimating that the following resolution had been just passed at a meeting of the committee :—

That no bathing establishment should be placed on the list of the War Office which does not allow medical men other than the resident physician to send their patients freely for treatment.

I was asked to state definitely the practice of the hydro in this respect without delay. I did so, and intimated that I was medical superintendent of the hydro and took charge of all details with regard to the treatment of invalids, and informed them that the lay manager of the hotel—albeit a very competent and energetic gentleman—took no charge whatever of the baths or treatment arrangements. As regards patients from outside doctors, I intimated that nine-tenths of my patients were sent me through the kindness of "outside men" in all parts of the country, as well as from Peebles (town and county). These gentlemen invariably left me to deal with the patients according to my own discretion, making some suggestion perhaps occasionally by 'phone message or letter. In short, I intimated what seemed almost superfluous, that I actually discharged the duties of a medical superintendent. I also stated that I would be glad to hear that the committee had no intention of starting a boycott—which under the circumstances I considered most uncalled for—as I had expressed complete willingness to place the establishment, so far as my directors would permit and was humanly possible, at the disposal of wounded soldiers and officers, and to treat the former, at any rate, gratuitously.

I begged for an early reply, but received none whatever until, on my again writing about March 24th to Dr. Fox, personally, expressing rather pointed criticism of the methods on which the whole business was being conducted, I got a personal reply from Dr. Fox. This began as follows: "By this time you would have received Dr. McClure's letter, and understand the real position. He will write you further ..... "; with some other remarks which I need not repeat. As Dr. Fox had placed a late postage extra ½d. stamp on his note he evidently considered the matter urgent, so I wired at once that I had received no letter, first or second, from Dr. Campbell McClure. I confirmed the wire by letter, and received no response whatever from either secretary. I waited a week and then wrote stating exactly where we stood, and requested the further letter from Dr. McClure promised. On April 1st I received one as follows signed by Dr. Fox: "On receipt of your letter of 24th my colleagues and I were regretfully obliged to conclude that the establishment of medical baths at Peebles was not of such a nature as described in the resolution of which I sent you a copy on Feb. 22nd." I replied, expressing regret at the very ill-considered action of the committee, and have since been in communication with the War Office direct.

Now, Sir, I would like to point out one or two further facts having a bearing on this matter. Last summer Dr. Fox visited this establishment and had a long interview with me, and at that date expressed a desire that it should be "thrown open" so that any medical man could come and prescribe baths or physical treatment for his or her patients, and generally take a hand in "running the show." I do sincerely hope I am not unusually selfish, but as I happen to be physician-in-charge and have a monopoly of the practice—which is really what the Americans call "referred" practice—I did not then happen to see Dr. Fox's point of view as regards private patients. The hotel company might have something to say also if I turned the place inside out and broke my contract with them. Dr. Fox's idea, first promulgated to me last August, now turns up again from the Balneological Committee, dated from 36, Devonshire-place—Dr. Fox's house.

In his letter of March 22nd Dr. Fox tells me "all the considerable bathing establishments have opened their doors in this emergency." I have investigated this matter, and two days ago received a letter from the physician in charge of the largest establishment of its kind in the country, possessing very elaborate and extensive baths which cost upwards of £20,000, and my friend informs me that, quite apart from "opening their doors" in the manner described, they had never even been communicated with, but in any case they were packed with visitors, very largely patients. I find difficulty in reconciling the two statements.

Some years ago you gave me the courtesy of your columns (August 12th, 1911) for a short article on Institutional Hydropathic Treatment and Spa Treatment, in which I endeavoured to show there was a special field for each. I have personally been only engaged in the former branch of hydrotherapeutic practice, but it has always struck me that the spa physician has not only adopted, for the most part, an attitude almost contemptuous to such men as myself, but further in regard to institution work he is largely "without understanding." He appears to be incapable of absorbing the idea that such an establishment might be run by a medical man much after the manner of a tuberculosis sanatorium—or a private asylum—with, of course, lay assistance, in various ways.

Dr. F. A. de Thierry Mouillot, a past president of the Balneological Society, judging from a recent article in the *British Medical Journal*, would seem to be waking up to the possibility. But past experience of spa physicians would lead me to conclude that men engaged like myself in institution treatment are by them regarded as "very small beer." Possibly on the ground that Dr. Mouillot refers to—viz., that the institution is run in large measure for the profit of lay shareholders, and also advertises itself in the medical journals at times. But might I remind Dr. Mouillot and Dr. Fox and other spa physicians that while they themselves do not have such advertisements the baths committee of this or that municipality sometimes advertises its "Queen of watering places" profusely in railway stations and by posters, while the spa physician reaps the benefit.

Now Dr. Fortescue Fox, a quondam spa physician, wishes to coerce me, to run the medical side of this establishment on *his* lines or suffer *military* boycott at any rate. I cannot meet his views. Several hundred "Tommies" have had baths of sorts each week here since early March at a charge of one halfpenny for a towel! This has led to much overtime and Sunday labour for the staff, but the men, now gone, were very appreciative, as were their officers.

I hope, in spite of the Balneological Committee, to have many opportunities of doing "my bit" during the coming year, but I cannot

face the inevitable confusion and upset which the carrying out of the wishes of Dr. Fox and his colleagues would cause in a place of this kind—among the bath attendants and the ordinary *clientèle*. I am, Sir, yours faithfully,

THOMAS D. LUKE, M.D. R.U.I.

The Hydro Hotel, Peebles, May 1st, 1915.

THE TREATMENT OF CORNS.

To the Editor of THE LANCET.

SIR,—Measures for the treatment of this often extremely painful affection must be divided into two groups: (1) those which get rid of the corns and (2) those which prevent their recurrence. The ordinary treatment for a painful corn is to cut it down as much as possible, without causing bleeding, either straight away or after a preliminary soaking with hot water or some chemical, and then for a few days apply a protective dressing, such as a corn-plaster or lint and strapping, until the pain and tenderness have gone out of it. The patient then resumes his ordinary vocation entirely relieved; but after a few weeks or months the corn reappears as before, and treatment is again required. Such merely palliative treatment, the stock-in-trade of thousands of chiropodists, should only be carried out alone in exceptional cases; we should aim at *curing* the corn—i.e., removing it and *preventing its recurrence*.

1. *To get rid of the corn.*—The foot is soaked in hot water (105° F.) for half-an-hour, the hard part of the corn is then gently rubbed away with a file, and glacial acetic acid applied to the base of it. It is then covered with india-rubber sheeting, of the same quality as that used by dentists in making a rubber dam, fixed in position by two elastic bands around the foot or toe, one distal and one proximal to the corn. This is removed morning and evening and the acid reapplied for two to three days until the site of the corn begins to feel tender; application of the acid is then stopped and the rubber covering used alone. By this time the corn with the immediately surrounding skin is white and dead-looking; after another two days, if not before, the core of it can be completely removed by rubbing firmly with a gauze swab. The rubber is now left off altogether; lint spread with boric ointment is applied to the site of the corn, and reapplied twice daily for two or three days more. The surrounding parts then soon regain their normal appearance. For this treatment to be effectual the patient should not use the foot while it is being applied. If the corn is inflamed the inflammation must be entirely relieved by fomentations and rest in bed before this treatment can be carried out.

2. *To prevent its recurrence.*—To do this one must remove the causes producing it, the two commonest being a contracted state of the toes and improperly shaped boots. A condition frequently met with is where the toe is hyper-extended at the metatarso-phalangeal joint and flexed at the proximal interphalangeal joint; this deformity, when exaggerated, as it often is in the case of the second digit, is known as "hammer-toe." The result of this deformity is a corn on the sole of the foot beneath the head of the metatarsal and another on the dorsum of the toe over the prominent interphalangeal joint. No amount of treatment directed to the region of the corn will prevent its recurrence if the contracted state of the toes be not remedied. The extensor tendons of each contracted toe must therefore be divided subcutaneously; in a severe case it may be necessary to divide the flexor tendons too. Thereafter the toes must be prevented from contracting again by gentle passive stretching morning and evening. If there be present an actual condition of "hammer-toe" it must be dealt with by excision of the joint in the ordinary manner.

Having got the toes straight, and having removed the corns, it is now essential that the patient be fitted with boots the shape of his feet. These must be made to measure on fresh lasts by a skilled bootmaker; it is useless to attempt to fit such a patient with ready-made boots or shoes. For often one foot is ¼ in. to ½ in. longer than the other, and when one boot is a good fit the other is too big or too small. Also, only rarely is the boot broad enough in the tread to allow the foot to spread properly, and it is almost invariably the wrong shape—that is, instead of being "straight on the inside," with the end of the boot opposite to the big toe, the end is opposite the third toe, so that the former is pushed out, producing in time the deformity of hallux valgus. When the big toe is pushed out by an improperly shaped boot it either pushes the other toes out, so that the whole foot "treads over" the outer side of the boot, or less commonly it overrides the second toe, or causes such cramping of the toes that any toe may overlap or be overlapped by the next one. No permanent improvement can be effected in these deformities, and in the corns produced by them, unless the patient be fitted with correct footwear. Apart from the latter, the best treatment for slight hallux valgus or for overlapping toes is the wearing of digitated socks or stockings during the daytime and the use of indiarubber "toe-dividers" at night, which treatment must be persisted in for some years.

When consulted by a chronic case of painful corns our practice should be to send the patient to hospital or nursing home and at once commence the acetic acid treatment. On the second or third day if any toes be contracted the tendons keeping them so are divided subcutaneously with a fine short-bladed sharp-pointed tenotome, under gas and oxygen; and on the fifth or sixth day the bootmaker arrives to measure the now much improved feet for suitable boots; at the end of another week the boots are ready, the corns have been got rid of, the shortened tendons have now all become lengthened, and the patient can leave for a week's convalescence at home. The only after-treatment necessary is gentle stretching of the toes into the over-corrected position, carried out by the patient's own fingers for a minute or two morning and evening for some months, and the long-continued wearing of boots and shoes made on the new lasts. The patient thus obtains permanent relief from painful corns from which he may have been suffering for a generation.

With regard to digitated socks—1. Their use is seldom necessary for all the toes; as a rule, only one or at the most two toes require restraint. 2. Unless they fit perfectly, they soon cause sores and blisters. 3. It is better, therefore, for the patient to wear ordinary socks half a size larger than he usually takes, and convert them into digitated socks for the particular toes required by sewing the plantar and dorsal parts of the sock together parallel to and on either side of the toe which is to be kept straight. A pocket is thus formed into which the affected toe can be slipped. 4. When digitated socks are worn, whether of the kind just described or not, foot powder must be sprinkled between the toes every morning to avoid chafing.

Hallux valgus.—As regards the treatment of the corn produced by this deformity, much depends on the position of the abnormal bony projection beneath it, and upon the presence or absence of a bursa beneath the corn. If the bony projection is quite clear of the ground when the patient is standing, as is usually the case, it should be removed by operation, the corn having been previously got rid of as described; but if it form part of the bone on which the patient stands removal by operation is contra-indicated. Then again, if there be a bursa beneath the corn—that is, if the condition known as bunion be present—no amount of local treatment can get rid of both the corn and the bursa; and after a course of local treatment to the former the latter must be excised by operation. Such an operation is, however, not worth doing if the bony projection beneath cannot, for the reason given above, be chiselled away, and therefore there are some cases of this condition which *cannot be cured:* these must be treated palliatively by the wearing of a rubber or papier maché shield to protect the part, in conjunction with specially shaped boots and shoes of soft leather.

It may be added that the circular corn-plasters are often very useful in protecting a corn from pressure, especially in the sole of the foot, under the head of a metatarsal bone. Such a corn is difficult to cure, because the patient will not lie up for a sufficient length of time, and protection is often the only treatment he will accept.

I am, Sir, yours faithfully,

PAUL BERNARD ROTH, F.R.C.S.Eng.,

Surgeon, Kensington General Hospital; Senior Orthopædic Clinical Assistant, London Hospital: Captain, R.A.M.C. (S.R.).

Harley-street, W., April 30th, 1915.

TREATMENT OF "INCRUSTED CYSTITIS" BY SUPRAPUBIC DRAIN AND INTRA-VESICAL INJECTION OF LACTIC BACILLI.

To the Editor of THE LANCET.

SIR,—With reference to the letters on this subject in THE LANCET of May 1st and 8th the following may be of interest. During 1905 and 1906 while working at the subject of suprapubic drainage I frequently washed out patients' bladders affected with "incrusted cystitis" with acidum aceticum dilutum (℥ ii. ad O i.) and acidum hydrochloricum dilutum (℥ i. ad O i.), and the solution of the phosphates was rapid and painless unless the acid happened to flow over an ulcer or crack in the skin when it would give rise to considerable pain. It seemed to me at the time that the action of the acid gave rise to a much larger quantity of mucus in the urine than had been present before. Whether this was due to mere chemical precipitation from the alkaline solution or to a stimulation of the cells to produce more was not clear, but the persistence of excess of mucus after lavage was stopped pointed to the latter as being the cause. The results were better if the bladder was washed out with a dilute solution of sodium hydrate after the acid had acted, and if this washing out was also done before the acid was employed, so as to dissolve the mucin, the solution of the phosphates by the acid was very rapid.

It would be valuable to hear the opinions of those who have used the lactic bacilli method on these points—viz., Does the treatment give rise to more or less mucin formation than does treatment by lactic acid alone, and is the action of the acid which is produced bacteriologically in a nascent state greater and more rapid on phosphates and bacilli *in vitro* than the action of ordinary lactic acid in solutions of equal strength? It seems to me that the question of disinfection in such cases is so closely bound up with the removal of the foreign body (phosphate) that observations on these points will be most valuable. This is especially true just now when bullet wounds of the bladder and surrounding bones and soft tissues are giving rise to so much misery, suffering, and death.

I am, Sir, yours faithfully,

Aberdeen, May 10th, 1915. G. H. COLT.

STOMACH V. HEART IN RELATION TO PRÆCORDIAL PAIN AND SUDDEN DEATH.

To the Editor of THE LANCET.

SIR,—The following passage occurring in Sir R. Douglas Powell's interesting letter in THE LANCET of May 1st confers upon the algesic symptom the status of a recognised place in the contents of the angina pectoris syndrome: "There is, of course, no doubt as to the existence and in some degree the diagnostic value of localised 'algesia,' or, as I should prefer to say, surface pains, and points of tenderness in angina pectoris, as in association with most forms of visceral suffering, and a nerve centre may become hypersensitive from repeated excitation." A state of hypersensitiveness in nerve centres is in other words a state of neurosis. This view is in accordance with that expressed in my letters to THE LANCET of April 3rd and 24th. But if the presence of a neurosis be admitted, the conclusion follows that the status of the neurosis in the syndrome is that of predisposing cause. Sir Douglas Powell refers to another solution to which he attaches greater importance—namely, that coronary disease is the operative causal agency in the case which had been reported by me. With submission to the better opinion of Sir Douglas Powell, I would bring certain facts before your notice for consideration which appear to me to place insuperable obstacles in the way of the application of the Jennerian doctrine to cases of the type which I have described.

Precise methods of cardiographic record recently introduced and employed in research furnish ample proof that the myocardial functions of Gaskell, without exception, are working after a normal manner during the course of the anginal seizure. Hence the theories of claudication and cardiac spasm become untenable. The hypothesis of the "tender" artery is open to the objection that arteries lying near the surface which offer direct means of examination may pass through all stages of degenerative change without manifesting any signs of tenderness upon pressure. Moreover, post-mortem examination not infrequently reveals extensive coronary and aortic disease in cases which had sustained for many months previous to death exceedingly high blood pressure without the patient having been conscious of any præcordial or other thoracic pain.

Difficulties which beset the explanation of the following list of phenomena occurring in the angina pectoris upon any hypothesis based upon coronary or aortic disease, as the predisposing cause, are apparent.

1. Pain in the course of intercostal nerves. Spasm of intercostal and recti abdominis muscles, algesia, vaso-motor disturbances including increased systemic blood pressure, cardiac symptoms, vagal inhibition, eructations of flatus, retching, vomiting, the influence of gastric hypertension in the excitation of seizures, and the effects of gastric deflation in determining the subsidence of seizures.

2. Post-mortem statistics indicate that the frequency of coronary disease is not in greater ratio in subjects of angina pectoris than in subjects of indifferent visceral arterial disease. In a series of 398 cases of visceral arterial disease, the subjects dying at an average age of 45 years, Dr. Harlow Brooks, professor of pathology, New York University, observed in the course of his ordinary necropsial duties 270 instances of coronary disease, a ratio equal to 67·8 per cent.[1] Some figures relating to the frequency of coronary disease in the angina pectoris are available for comparison. In 244 cases of angina pectoris collected by Tacchi,[2] Sir John Forbes,[3] Lussana,[4] Wilde,[5] Gothair,[6] Huchard,[6] and Osler,[7] coronary disease was observed in 52 per cent. of the subjects. The largest ratio appears in Professor Osler's list, in which coronary disease was found in 13 out of 17 cases, the percentage being 76·4.

3. Professor Osler gives the age periods of mortality from angina pectoris. I quote from his Lumleian lectures on the subject. Under 30 years, 9 cases; between 30 and 40, 41 cases; between 40 and 50, 59 cases; between 50 and 60, 80 cases; between 60 and 70, 62 cases; between 70 and 80, 13 cases; above 80, 3 cases.[8]

According to Professor Osler's figures, which correspond fairly accurately with those of the

[1] American Journal of the Medical Sciences, May, 1906, p. 781.
[2] Twentieth Century Practice of Medicine, vol. iv., p. 441.
[3] Ibid., p. 473. [4] Ibid., p. 473. [5] Ibid., p. 439. [6] Ibid., p. 439.
[7] Lumleian Lectures, 1910.
[8] Ibid., THE LANCET, March 12th, 1910, p. 698.

Registrar-General, the incidence of death from angina pectoris after 60 years of age declines year by year until at 80 it approaches nullity, whereas during the same age periods among the general public the incidence of coronary disease is increasing year by year until it reaches universality.[9]

Sir Douglas Powell observes that the fact of præcordial pain appearing after marked exertion is suggestive of aortic disease. But permit me, Sir, to point out to you that muscular effort excites paroxysms in a class of cases which boast for their pathology the segmentary neuroses. I refer to the class of paroxysmal spasmodic complaints associated with the musculature of the alimentary canal and other abdominal visceral cavities. Included in this class are: trismus of tetanus, palato-pharyngeal spasm of hydrophobia, œsophagismus, gastrismus, entero-spasm, biliary and renal colic, colismus, tenesmus, strangury and utero-spasm; paroxysms in all these instances alike are induced or aggravated by muscular effort. I may also add in this connexion that the spasm in certain of these disorders is reduced, as in the angina pectoris, by administrations of nitro-glycerine.

If the angina pectoris be included in this class of paroxysmal spasmodic disorders, as suggested by Heberden, a rational explanation is furnished for every symptom of the complaint and for every phase of it.—I am, Sir, yours faithfully,

Streatham Hill, May 4th, 1915. H. WALTER VERDON.

THE MEDICAL PROFESSION AND THE NEEDS OF THE ARMY.

To the Editor of THE LANCET.

SIR,—May I be allowed some space in your columns to suggest to your readers, including those in authority, a few points as to why there exists dissatisfaction among medical men who have already given their services to the army, and also why some who have not yet joined are hanging back from so doing.

The leading article in THE LANCET of May 8th puts the case of the War Office plainly and judicially, but from what I gather from those who are serving as medical officers in the Territorial Forces the causes of dissatisfaction are other than those to which you refer.

I can vouch for the following matters:—Grievances settle round two points, pay and promotion, not so much *per se* but as regards the inequality between the Territorial Forces and the forces popularly known as Kitchener's Army. A lieutenant in the R.A.M.C. (Territorial) gets 14*s.* per diem, together with 3*s.* for billet and 1*s.* 9*d.* per diem for rations. A lieutenant in "Kitchener's Army" gets £1 4*s.* per diem and £60 on release from service. Promotion, too, is slow; I know of at least one instance in which an officer was gazetted some seven months ago, he is still a lieutenant, although he has been doing a major's work (in command of a section) all the winter and spring. A recent application for promotion, backed by his commanding officer, was refused on the ground that by the Territorial Forces Regulations a lieutenant R.A.M.C. must have seen at least three years' service. Other executive branches of the service get rapid promotion; for instance, a man who was gazetted second lieutenant in October, 1914, in the Army Service Corps is now a captain.

The Territorial R.A.M.C. men only joined originally for home service, but an Army Order has been made insisting on service anywhere required, whether abroad on active service or in India; and it must be remembered that Territorial R.A.M.C. are frequently almost all elderly men, for the younger men naturally join Kitchener's Army. The question of pay is not the only grievance. The question of promotion is felt to rankle, for the refusal of it seems to show a grudging recognition of the spirit which led elderly practitioners to volunteer, and which the War Office would do well to foster rather than, as it is doing, to dash.

I am, Sir, yours faithfully,

May 11th, 1915. H. P. CHOLMELEY.

To the Editor of THE LANCET.

SIR,—Many eligible men still abstain from giving up lucrative practices and offering their services for the following reasons:—

1. All medical officers, though their work and risks may be identical, are not treated alike. Treatment depends on whether a man is: (*a*) a temporary Royal Army Medical, in which case he receives the rank of lieutenant but the pay of 25*s.* a day (major's pay); (*b*) a permanent Royal Army Medical, in which case he receives the rank of captain and draws captain's pay; or (*c*) a Territorial Royal Army Medical, in which case he receives the rank and pay of lieutenant (14*s.* a day pay and 4*s.* 9*d.* allowances at times). The Territorial medical officer has almost invariably made bigger sacrifices, yet receives the least pay.

2. Certain medical officers acting in a combatant capacity have offered to transfer to the R.A.M.C. and have not been permitted to. (Their applications have not even been forwarded.)

3. Many R.A.M.C., both Regulars, Temporary, and Territorial, have for months past been kept at home only partially employed when they have repeatedly asked to be allowed to go abroad, their work being carried on at home by civilian doctors. Is it not reasonable for them to ask themselves whether the War Office can really be so very short, as it does not appear to make the best use of what material it already has at its disposal.

I suggest the following as a remedy: 1. Do away with the arbitrary distinction between Territorial and Regular. Classify, if necessary, into home and imperial service medical officers, but let all army doctors come under the same departmental control and let them all receive the same scale of pay. 2. As it takes approximately five months to train a combatant officer, but five years to train a medical officer, let all doctors at present serving in a combatant capacity revert to their professional work. 3. Do away with the medical officer for regimental work at home and substitute the part-time civilian practitioner, who could, without much heavier work, see the 20–30 army at the same time as he sees his panel patients. And lastly, if it were found that the Admiralty have a surplus of medical officers, could no amicable arrangement be arrived at whereby either a united medical service could be formed or even a united medical reserve service on which either could draw as requirements arose?

I am, Sir, yours faithfully,

May 7th, 1915. LIEUTENANT R.A.M.C.(T.F.).

[9] American Journal of the Medical Sciences, May, 1906.

The War.

THE CASUALTY LIST.

THE casualty lists published since our last issue contain the following names of medical officers:—

Wounded: Lieutenant P. Cagney, R.A.M.C. (attached 2nd Essex Regiment); Lieutenant R. C. Neil, R.A.M.C. (attached 6th Middlesex Regiment); Surgeon Charles F. A. Hereford, R.N.V.R.

Missing (believed to be prisoner): Surgeon Probationer William W. K. Brown, R.N.V.R. (H.M.S. *Maori*).

Captain Howard Tomlin Hunter, 6th Northumberland Fusiliers, T.F., who was killed at Ypres on April 26th, was an M.B., B.S. Durham, 1910. He received his first commission in the Territorial Forces in 1906 and was gazetted captain in 1912.

MEDICAL ORGANISATION AT THE FRONT.

A most timely article has been communicated to the press by an "Eye-Witness present with General Headquarters," in which the whole subject of the treatment and evacuation of the wounded is ably dealt with. The fortunes of the wounded man from the time of his wound until the reception in a base hospital have been described in these columns. In a way the whole story will be familiar to medical men and to some extent to the public; but "Eye-Witness" has given a consecutive narrative, while hitherto only chapters dealing with this, that, or the other point have been published, and considerable experience has sometimes been assumed for the reader.

The narrative begins by describing the organisation in the field, at the head of which is the Director-General. "Eye-Witness" says:—

The medical organisation in the field consists at the front of two kinds of formations, those of armies and those of divisions. The former are under a Director of Medical Services, who, while responsible for the technical working of all units and branches of the medical service within his army, has under his direct control the large clearing stations established within easy reach of the railway, the motor ambulance convoys, and all sanitary arrangements in the particular army area. The divisional formations are under the Assistant D.M.S. of the division, who controls the field ambulances, dressing stations, aid posts, and sanitary sections in the divisional area.

To show exactly how these formations work, it will be as well to trace the normal progress to the rear of a man who has been struck down in the firing line. Wounded while advancing, he has possibly been left lying in the open under a hail of shrapnel bullets which are striking the ground all round. From this hazardous position he is rescued by two stretcher bearers, who, choosing their moment, rush across, pick him up, and carry him back to the shelter of a trench. These bearers may either be from his own unit—16 men of which in the case of an infantry battalion have been trained in first aid and stretcher drill—or they may be men of the Royal Army Medical Corps belonging to a bearer subdivision of a field ambulance. They will take him to his "regimental aid post," probably situated in a dug-out, in a cellar, or in some sheltered spot giving cover from fire, where he will receive first aid from the R.A.M.C. officer attached to the battalion. From there he will be conveyed either on a stretcher or, if circumstances permit and a road is handy, in a horsed ambulance wagon to the nearest dressing station.

Divisional Field Ambulances.

The wounded man now passes into the charge of the divisional field ambulances, the bearer subdivisions of which collect the wounded, while the tent subdivisions form dressing stations. At the dressing stations, which are pushed as near as possible to the front, his wound is attended to and he is injected with antitetanic serum. He is then removed by motor or horsed wagon to a larger dressing station further to the rear, where he must remain for some time during the process of sorting the wounded, but where he receives food and drink and is made as comfortable as the circumstances allow. He is now prepared for transport to the

Casualty Clearing Station.

So soon as he is placed on a motor ambulance wagon (says "Eye-Witness") belonging to a detachment of the Motor Ambulance Convoy and starts on the next stage of his journey he passes out of the hands of the division into the formations which are under the direct control of the army. These motor convoys, the first units of the kind that have ever been used in war, each consist of a large number of vehicles, with the necessary officers and other ranks. A proportion of these units are allotted to each army. The Casualty Clearing Stations, to one of which the wounded man is now brought, are under existing conditions generally situated at the railheads, so that patients can be carried direct from them to the ambulance trains, though this would not always be the case in field warfare; for instance, where troops were advancing every day. Their position, however, is always chosen with a view to facilitate despatch by ambulance or train. They are not hospitals in the true sense of the word; but a proportion of serious cases, such as those of certain kinds of injury to the head or abdomen, which cannot be moved without danger, may be retained in them for a considerable time. Although equipped and staffed to deal normally with 200 patients, they have a sufficiently elastic organisation to be able, if necessary, to cope with much larger numbers during the progress of a battle, and special arrangements are made for temporarily augmenting the staff when severe pressure is expected.

"Eye-Witness" mentions here that during the operations at Neuve Chapelle one clearing station admitted on an average nearly 800 wounded daily for four consecutive days, passing 3653 cases to the base in six days. At the clearing station, where nursing sisters and beds first appear on the scene, the length of stay is determined partly, as has been mentioned, by the nature of the wound, but mainly by the railway facilities. Once on board the train the patient leaves the "collecting zone" and enters the "evacuating zone."

Ambulance Trains.

"Eye-Witness" continues:—

There are 14 ambulance trains now running. Each has a personnel of 3 officers and 47 other ranks of the Royal Army Medical Corps, and 3 nursing sisters. The number of wounded conveyed on any journey depends on the nature of the injuries—i.e., whether the sitting-up or lying-down cases predominate. With the exception of certain specially designed trains, which have been built by some of the great railway companies in England, the rolling stock is made up of various kinds of coaches and "fourgons" belonging to the French railways, which have been adapted for the accommodation of wounded, staff, kitchens, dispensaries, and stores. The number of trains will eventually be made up to 24, the coaches for the additional units required being now under construction in England, or already in transit to France. Several of these trains have been presented to the nation by private donors.

On arrival at a base the wounded man is carried by motor ambulance to a permanent hospital.

Permanent Hospitals.

These hospitals are of two kinds, says "Eye-Witness"—general and stationary—the difference between the two lying chiefly in the number of patients they are designed to accommodate. The first are the largest and are elaborately equipped, being fitted with all the modern appliances of the first-class hospitals met with in civil communities. Stationary hospitals are not necessarily situated at a base, but may be located at different points on the lines of communication, and, in spite of their title, are intended to be more mobile than the general hospitals.

A third category of hospitals found at the bases is composed of Red Cross or voluntary hospitals. The personnel and equipment of these are provided by the society or subscribers who organised the unit, but each is under the command of an officer of the Royal Army Medical Corps. These establishments vary in capacity. Some are directly provided by the British Red Cross Society, and others work under its auspices. The remainder are the Australian Voluntary Hospital, which was the first of its class to land in France during the early part of the war, and the Liverpool Merchants' Hospital, which has only quite recently arrived. The Allied Forces Base Hospital, which has rendered useful service, has been temporarily closed, but will reopen at an early date.

All the base hospitals are established in huts, tents, or in buildings suitable for the purpose, such as hotels or casinos. The duration of the patient's sojourn in one varies directly with the nature of his wound. Very severe cases, which it would be inexpedient to move, and slight cases likely to be fit for duty or discharge to a convalescent camp within three weeks are retained. Those which are unlikely to recover within three weeks, and will not be harmed by further transport—and by far the largest number comes within this category—are sent to England so soon as accommodation is available on board a hospital ship.

"Eye-Witness" concludes his bird's-eye view of the medical work at the front by pointing out that it is founded on two leading principles: the maintenance of the mobility of the army by relieving the fighting troops quickly of non-effectives; and secondly, the rapid removal of the sick and wounded to places where they can be treated in the most favourable conditions. The arrangements for the evacuation of the sick and wounded along lines of communication, which are also required for the bringing up of food and ammunition, necessarily require a high degree of organisation. By pointing out that, inasmuch as nothing can be allowed to interfere with the needs of the fighting troops, the care of the wounded will now and again depend upon circumstances out of the control of the Army Medical Service, "Eye-Witness" answers in a sentence a great deal of ill-informed criticism.

How general the feeling is that the Royal Army Medical Corps has highly distinguished itself during the war is shown by the statement that "Amongst the many and diverse duties which fall upon the Royal Army Medical Corps during war perhaps none present more intricate problems than those which arise in connexion with the evacuation of wounded. And it is safe to say that during the present campaign none have been performed with greater efficiency, often in the face of immense difficulties imposed by the nature of the military operations."

He concludes by alluding to the conveyance of the wounded by barges, a method which has been employed in Northern France for the evacuation from Casualty Clearing Stations of seriously wounded men. The lives of such men might have been endangered by the jolting associated with train or motor journeys, and many critical cases have been carried by barge from the neighbourhood of the front to hospitals on the lines of communication, the barges having been specially converted into hospital craft and fitted with operating tables and necessary accessories.

ITALY AND THE WAR: ADDRESS BY PROFESSOR BACCELLI.

While the "Third Italy" was unveiling the memorial in marble on the Genoese seaboard, whence Garibaldi and his "thousand" embarked for the emancipation of the two Sicilies, she was at the same hour (writes an Italian correspondent) bidding Godspeed to her medical youth on the mission reserved for them in the consummation of her unity. The eloquence of D'Annunzio before the one assembly had its echo in the glowing words of Guido Baccelli before the other—words addressed to the Roman students at the close of the Medicus Annus in the Policlinico—Baccelli's own creation.

Baccelli's theme was the "Medico Soldato," and in developing it he expatiated on the whole field of medicine in its relation to war, starting from the Hellenic foretime, when the death of Machaon, the surgeon-general of the Greek army before Troy, shed dismay throughout the camp, down to the second decade of last century, when the great Napoleon pronounced his monumental *éloge* on Baron Larrey, the head of the medico-military staff. The Emperor's tribute to the service of that staff in maintaining the moral as well as the physical efficiency of his troops inspired the Roman physician to a luminous illustration of what the medical art can achieve under the far more complicated and difficult conditions of twentieth century warfare, winding up with authentic instances of such achievement drawn from Italy's recent annals, in which the regimental surgeon under fire, after exhausting the resources of his *métier* in tending the wounded, had himself to become a soldier, and by his prowess and skill in the fighting line, against overwhelming numbers, aided his combatant compatriots to retrieve the day when seemingly lost. Very significant in the present phase of what Italians call this "inhuman contra-human war," was Baccelli's allusion to Rome's victories over her barbarous enemies beyond the Alps, victories culminating in the triumphs recorded on the Antonine Column, in words still legible—

> Marcus Aurelius Imperator
> Armenis parthis *Germanisque*
> Bello maximo devictis
> Triumphalem hanc columnam
> Rebus gestis insignem
> Antonino Pio patri dedicavit.

In connexion with this allusion Baccelli recalled as a "historical incident," the request made to him by the Kaiser Wilhelm for a description of the habiliments of the Marcomanni, as engraved on the column when these were prisoners of war at the hands of the Roman legions. From this digression the orator proceeded to show how, if the military art can devise her methods of inflicting wounds and extinguishing life, the medical art is not behindhand in coping with these. Over and above the superior sanitary conditions in which the soldier lives in camp or quarters, the advance in medicaments and the means of introducing them into the system is not less conspicuous, as illustrated by the largely extended and reinforced "armamentarium chirurgicum" and the methods of treating what, for instance, used to be an "opprobrium" of military surgery—tetanus. Amplifying this thesis with illustrations from his own clinique, particularly in the field of intravenous injection, Baccelli paid a glowing tribute to the work of all the belligerent nations now at war, and drew from it the hopeful, the reassuring, augury that the humanely inspired function of the healing art will one day react in a moral sense on the destructive instincts still present in man, pressing home the conviction that civilisation has nobler ends to aim at and to achieve than those of international jealousy and antagonism, and that the forces now at deadly variance may yet be

reconciled to coöperation in unison against the perennial adversary, insanitation and disease.

Quod felix faustumque sit was the aspiration evoked by this humanitarian forecast from the crowded audience, professional and lay, that hailed with successive salvoes of applause the veteran orator as he resumed his seat.

TYPHUS FEVER IN PRISONERS' CAMPS IN GERMANY.

The United States Ambassador in Berlin has warned the British Foreign Office through the United States Ambassador in London that typhus fever has broken out in the following prisoners' camps in Germany:—

Altdamm.	Sagan.
Cassel.	Schneidermuhl.
Chemnitz.	Wittenberg.
Gardelegen.	Zerbst.
Langensalza.	Zossen.

Letters will not be despatched from these camps owing to the risk of transmitting the disease.

THE DENTAL NEEDS OF THE ARMY.

That more dental surgeons should be attached to the Expeditionary Force has been the opinion of a good many observers. A vast amount of dental work is waiting to be done. This will cause no surprise to those acquainted with the dental conditions of this country, and more especially to those who have had the opportunity of seeing the condition of the mouths of those accepted as recruits. Man after man has been returned from France suffering from conditions traceable to the teeth, conditions which could easily have been avoided by a little foresight. It is known that during the Boer War nearly 2500 soldiers were invalided home from South Africa on account of teeth, and it has been computed that this meant a financial loss of nearly a quarter of a million to the nation. Yet the lesson was not learnt, and no adequate steps were taken.

On the outbreak of the present war there was no machinery for dealing with this serious question of dental disease in the soldiers, and the work of attempting to deal with it devolved mainly on the philanthropy of the dental hospitals and of private practitioners, and to their credit be it said that they did all that was possible. Subsequently, during September and October, about 12 dental surgeons were sent to France, and since then others have gradually been appointed to various centres. The number appointed is, however, quite inadequate to deal with the extraordinary amount of dental disease, and reliance has still to be placed on the charitable institutions which in many instances have, we believe, entered into business arrangements with the War Office. The provision made is still inadequate and in many ways most unsatisfactory. In the first place, dentistry, although a branch of medicine, requires special knowledge, and it would therefore seem advisable that for this section of the army medical work the Director-General of the Army Medical Service should be able to call for the best expert aid in general organisation. In the second place, the work which is being done by the various officials of dental hospitals and by dental surgeons attached to the general hospitals is not officially recognised. In many cases these officials are medical men, and it would be more satisfactory if they were accorded rank as it is accorded to other civilian medical men employed on war service. The absence of proper recognition of the workers makes it extremely difficult to obtain the service of the younger men. To our knowledge there has been a great trouble in persuading young dentists that they are doing better work by remaining at home and attending to the dental needs of the soldiers than by joining the forces as combatants.

At the recent meeting of the Edinburgh Dental Hospital Lieutenant-Colonel Sir Joseph Fayrer, colonel in command at Craigleith Military Hospital, referred to the want of a properly organised Army Dental Department, and hoped that at every examination of the Royal Army Medical Corps there would be vacancies for dental surgeons who should also be qualified otherwise; we presume he meant medically qualified. There is much in this suggestion. The army dental surgeon does not need to be an expert in dental mechanics, but rather one capable of performing surgical operations on the teeth, knowledge which a medical man can acquire in a period of possibly six months. It is quite clear that the near future will see a demand for dental surgeons for the naval, military, and civil services; such men will not require the elaborate mechanical training now demanded by the various licensing bodies, rather will these dental surgeons be required to possess a good knowledge of allied medical conditions, so as to give them a basis for forming general conclusions. We think that those responsible for dental education should seriously consider the question and make the curriculum of the dental students less mechanical and more medical in its character.

THE Metropolitan Counties Branch of the British Medical Association have appointed a War Emergency Committee, and a circular has been sent to the members asking them to fill up and return a form indicating their ability to offer to the War Office whole-time or part-time service.

THE KING GEORGE HOSPITAL.—The working of the dental department of the King George Hospital has now been arranged so that one of the honorary dental surgeons will be in attendance on each morning of the week. Each dental surgeon has strengthened his department by the appointment (with the approval of the committee of management of the hospital) of a qualified clinical assistant, and he has, moreover, been specially provided with an anæsthetist. In this way the work of the dental department ought to be carried on with equal smoothness and efficiency.

The three rooms which have been set aside for the dental work are upon the top floor (the fifth) of the hospital, and are provided with large windows with a north aspect. In the afternoon these same rooms will be at the disposal of the surgeons who are in charge of the laryngeal and aural cases. Apparently, it has not yet been decided if qualified clinical assistants will be called for in connexion with these cases; but inasmuch as a great deal of important operative work will be taking place such appointments might prove of great value and importance, whilst the ordinary resident medical officer can hardly be expected to possess that special knowledge which might be desirable.

THE SCOTTISH WOMEN'S HOSPITALS.—The scope, character, and services of the Scottish Women's Hospitals were well explained by Dr. A. Louise McIlroy recently to a meeting at Airdrie, near Glasgow. Dr. McIlroy referred to the objections that had been promulgated against the Scottish Women's Hospital scheme. To the charge that it was competing with the Red Cross Hospitals it was replied that the British Red Cross was occupied in the service of our own troops, who were the best looked after troops in the world, while the women's hospitals were devoting their attention to our Allies. The Red Cross itself had materially assisted them and there was no

overlapping. As to the expressions of apprehension concerning the fitness of women doctors to engage in such strenuous and arduous work and to undertake the very grave operations, Dr. McIlroy said that at first the British War Office would not employ women, so one little band of women doctors had gone out on their own account, and had done so well among the soldiers that they were taken on to Boulogne. They had since come back to London, where the War Office had given them a hospital of 500 beds to look after, staffed entirely by women. Dr. McIlroy described the hospitals of the Scottish women, which were divided up into units of 100 beds, with a fully equipped staff of women doctors, nurses, X ray apparatus, and laboratories on as complete a scale as the large infirmaries at home. The efficiency of all this equipment had been absolutely dependent on the generosity of the Scottish people. Dr. McIlroy contrasted the system and provision in Flanders and France, where they were remarkably well provided for and attended to, with that in Serbia, where they had to deal with, not only the wounded, but small-pox, diphtheria, and, it was said, plague, which was beginning to appear in some parts of Southern Europe. More than half of the Serbian doctors had died from typhus fever, and daily 10, 15, and 20 patients were dying. The great need of Serbia was more doctors and trained nurses, especially those with experience in fevers. They were now providing fully equipped tents and marquees as hospitals. They were fighting the disease that would follow the war, which it was their duty to keep from spreading to the other side of Europe.

ZEPPELINS IN THE MOUTH OF THE THAMES.—Southend-on-Sea was visited by Zeppelins just before daybreak on Monday morning, and about 100 bombs, mostly of an incendiary character, were dropped on the town and its outskirts. Outbreaks of fire occurred in five or six places, and damage estimated at £20,000 was done. One woman unfortunately lost her life, a bomb coming through the roof just over the bed in which she was lying asleep with her husband. The husband escaped with considerable injuries about the head and neck. One of the houses which was partly burnt out was that of Mr. H. W. Hull, a local medical practitioner, who is at present serving in the Royal Navy as surgeon on a hospital ship in the North Sea. He happened to be at home on 48 hours' leave of absence, and was awakened to find his house on fire.

RUSSIAN VITAL STATISTICS.—The Russian *Government Gazette* has just made a statement with regard to the organisation of medical aid in Russia, based on published information from the Chief Medical Inspector. The figures do not deal with a later date than the end of 1912, but allow us, none the less, to gauge to some extent the national health of our great ally. The vast size of Russia, as well as the backwardness of enormous districts of the empire, accounts for the impossibility of acquiring and publishing more recent figures. The mortality in Russia fell in 1912 to 25·9 per 1000, or 3·2 per 1000 lower than the average mortality of the preceding 10 years 1902–1911. The birth-rate, which was 43 per 1000, was 2·5 per 1000 lower than the average of the preceding 10 years. The natural increase of the population was 17·1, or 0·7 per mille more than the average of the period named.

The mortality from infectious diseases in European Russia declined considerably in 1912, amounting to 397 per 100,000 of the population, whilst in the preceding year it was 467, and in 1910 635. Similarly there was a great decline in the cases of infectious diseases excepting measles and whooping-cough. Of the total number of cases of sickness registered 67 per cent. consulted doctors, and 33 per cent. assistants, who are recognized in Russia as a lower order of practitioners. 18·4 per cent. of the diseases registered referred to the alimentary canal; infectious cases accounted for 16·3 per cent.

The statistics concerning the medical profession are very interesting, as they indicate that the difficulty of finding medical officers for the Russian army may have been considerable. The members of the civilian medical profession at the end of 1912 numbered 22,772, plus 28,500 assistants, 14,194 maternity assistants, 7238 dental surgeons and dentists. And the number of pharmacists was 13,357. Of the medical men, 72 per cent. were in the towns and 28 per cent. in the rural communities. There was one medical man to 1450 people in the towns, but only one to 21,600 in the country. The average number of inhabitants in the empire per doctor was 7200—viz., 6500 in European Russia and 13,100 in Asiatic Russia.

The number of hospitals and refuges was 8110, with 219,978 beds, of which 171,514 were in general hospitals. There were 41,404 beds in psychiatric hospitals and 7060 in lying-in establishments. In all the hospitals there were 3,311,637 cases during 1912, of which 162,446, or 4·9 per cent., were fatal. The deaths in hospital made 3·8 per cent. of the total in the Empire. In the psychiatric institutions there were 92,989 cases, with a mortality of 9·2 per cent. In the lying-in houses and refuges there were 309,626 cases. The number of births was 256,374, or 3·6 per cent., of the total births in the empire; the mortality was 0·4 per cent. At 28 Pasteur institutions 37,935 subjects were treated, and the deaths numbered only 136.

VACANCIES FOR MEDICAL OFFICERS.—Three medical officers are urgently required to complete the establishment of the 2/1st Highland Mounted Brigade Field Ambulance. Particulars of duty, pay, &c., will be given on application to the Officer Commanding, 2/1st Highland Mounted Brigade Field Ambulance, R.A.M.C., Houghton Hill House, Houghton, Huntingdon.

WOUNDED ALLIES RELIEF COMMITTEE.—Dr. Isabel Ormiston, chief medical inspector of schools to the Government of Tasmania, and Mrs. Patton Bethune, who were sent as a Sanitary Commission to Montenegro, have arrived at Cettigne and report that the Montenegrin Government request the despatch of a self-supporting hospital unit and a supply of vaccines, as well as disinfectants, to combat the typhus epidemic in Ipek and the surrounding country. The committee is proceeding to equip a suitable unit.

The Belgian Army Medical Commission has requested the Committee to undertake the care of a number of tuberculous Belgian soldiers who have acquired the disease during the hardships endured last winter in the trenches. The Committee appeals urgently for premises in which to establish a home. If any owner of a house on high ground and at the seaside would be so generous as to lend it for this purpose particulars will be gratefully received by Mr. Albert Van der Velde, honorary hospital superintendent, Wounded Allies Relief Committee, Sardinia House, Kingsway, W.C.

A MOTOR-CAR VOLUNTEER CORPS IN EDINBURGH.—A meeting of motor-car owners was held on May 10th in the North British Station Hotel, Edinburgh, to consider the question of forming an Edinburgh section of the National Motor Volunteer Corps. Mr. W. L. Sleigh, who had been invited by the headquarters of the force to form a local section, explained that the principal objects of the body were to provide local assistance to the regular army transport in the event of attack, assistance to recruiting officers and officers visiting lines of communications, hospital and Red Cross work, &c. He stated that the services of the force had been regularly used by the War Office in districts where companies were organised, and that it was desired to have local centres formed so that the provinces should be linked together. Following the discussion of the proposal the meeting resolved to form an Edinburgh section of the force, and further resolved itself into a committee to obtain members. A subcommittee, consisting of Bailie Rusk, Mr. Sleigh, and Mr. J. Scott Law, were appointed to make arrangements for the proper organisation of the movement.

THE BRITISH HOSPITAL AT PORT SAID.—At all times the provision of adequate hospital accommodation at Port Said, that gate between the East and West, is an object of great importance, but it is easy to understand that it becomes an imperative necessity for our wounded soldiers and sailors in the Near East at the present time. The hospital is now making an urgent appeal for £10,000 for its completion and equipment, and those who wish to contribute may address themselves to Mr. Arthur Stanley, M.P., London Chamber of Commerce, 1 and 2, Oxford-court, Cannon-street, E.C.

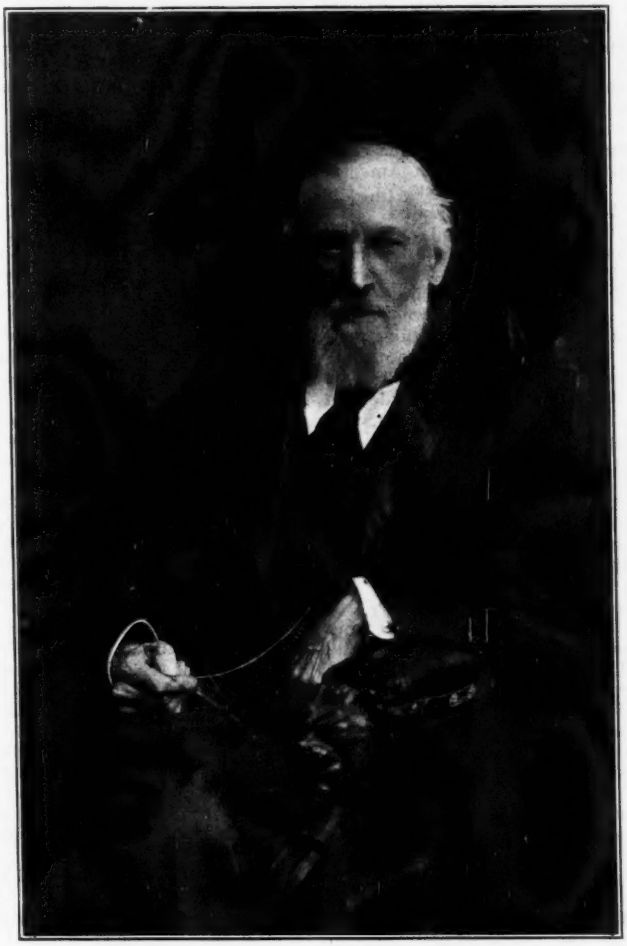
THE BELGIAN FIELD HOSPITAL.—Mr. H. W. Morrison has been appointed commandant of the Belgian Field Hospital, in succession to Mr. W. S. Perrin.

Obituary.

SIR WILLIAM RICHARD GOWERS, M.D. LOND. AND DUB., F.R.C.P. LOND., LL.D. EDIN., F.R.S.,

CONSULTING PHYSICIAN TO UNIVERSITY COLLEGE HOSPITAL, LONDON, AND TO THE NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, QUEEN-SQUARE, W.C.

William Richard Gowers was born on March 20th, 1845, and was educated at Christ Church College School, Oxford, and at University College Hospital, London. He was apprenticed for some time to Dr. Simpson, a practitioner in Essex. He had a brilliant career at his hospital and at the University of London. He qualified M.R.C.S. in 1867, took his M.B. degree in 1869, and his M.D. in 1870, winning the gold medal in that year. In 1879 he was elected a Fellow of the Royal College of Physicians of London, and was appointed Goulstonian lecturer, taking as his subject "Epilepsy." In these lectures he embodied the results of a careful, methodical, and laborious investigation of 1450 cases of epilepsy, and the volume containing the substance of the lectures, published a year later, remains still one of the classical works on this subject. A second edition, embodying the results of observations on over 1500 additional cases, 3000 in all, was published in 1901. He was elected to the staff of University College Hospital and of the National Hospital for Paralysis and Epilepsy. He had previously acted as registrar at the latter institution. Although his early work was on diseases of the heart and blood, on which subject he contributed articles to Reynolds's "System," he had already been attracted to the study of nervous disease, and he made his great reputation chiefly on account of his work on these diseases. During the first part of his time at University College Hospital he was closely associated with Sir William Jenner, for whose character and abilities he always retained an almost reverent admiration. He was also for many years on terms of almost affectionate intimacy with his relative, Sir John Russell Reynolds, and these two masters of clinical medicine counted for much in his methods of work.



SIR WILLIAM R. GOWERS, F.R.S.

It is difficult now to realise the state of chaos in which the knowledge of nervous diseases, especially as regards pathology, was at the time Gowers began to work at them, and it is in great degree due to the extraordinary character of his work in investigating and systematising that our knowledge of these diseases is now perhaps more complete than of any other branch of medical science. The first great step in this systematisation was a lecture which he published in 1879 on the Diagnosis of Diseases of the Spinal Cord. This lecture, afterwards published as a separate volume, attracted much attention at the time. It was illustrated by the representation of a series of sections of the spinal cord, in one of which was represented the area of ascending degeneration which Bechterew subsequently described and named "Gowers's tract." But the lecture was really epoch-making because of the manner in which pathological anatomy and clinical symptomatology were brought into relation, and it laid the foundation of the wonderfully complete knowledge which we now possess of the organic diseases of the spinal cord. His volume on "Medical Ophthalmoscopy" was published soon afterwards and was of inestimable value and interest.

In 1885 Dr. Gowers published a volume on "Diagnosis of Diseases of the Brain." By this time the clinical and pathological observations of Hughlings Jackson, and the experimental work of Fritsch, Hitzig, and Ferrier had completely altered the conceptions of cerebral physiology and function, and Gowers's acute mind readily grasped the significance of their observations. In the volume referred to, which consists of 18 lectures, principles

were laid down and rules enunciated which at the present day are perhaps a little extended but scarcely in any way altered. This book will remain for many years an indispensable part of every neurologist's library.

It would be impossible to enumerate all the articles which in this and in preceding years, and to a less extent in subsequent years, seemed to pour from Gowers's pen. We need only mention such articles as those on pseudohypertrophic paralysis, on canine chorea, on hydrophobia, and on many other subjects. These, admirable and valuable in themselves, were only facets, so to speak, of the great work on which he was engaged—the "Manual of Diseases of the Nervous System." The first volume of this, on Spinal Cord Diseases, was published in 1886; the second, on Diseases of the Brain and Functional Disease, in 1888. With the publication of the first of these volumes the author stepped at once into the very first rank of neurologists, and on its completion the great value of the work was recognised both in America and in Europe. It was reprinted in the United States, and it was translated into German, Italian, and Spanish. Second and third editions of the first volume were subsequently published; a second edition also of the second volume appeared. A third edition of the second volume, which was in contemplation, was never completed. Gowers also had it in his mind to cut down the "Manual" to one volume by omitting the anatomical and physiological parts. There is little doubt that this would have made an exceedingly useful clinical manual of nervous diseases, and one cannot but regret that it was never completed. In 1892 he also published his Lettsomian lectures on Syphilis of the Nervous System, delivered three years earlier.

The immense work which all the above publications involved, coupled with the anxieties of a large practice, unfortunately led to a breakdown in Sir William Gowers's health, which had never been very robust. This necessitated a voyage to South Africa, from which he returned much improved. In spite of the engrossing claims of his practice he continued to publish much useful matter. His Bradshaw lecture on Subjective Sensations of Sound, given before the Royal College of Physicians of London, and his Bowman lecture on Subjective Sensations of Sight, given before the Ophthalmological Society of the United Kingdom, are both valuable for the investigations and observations described in them, and suggestive because of the conclusions drawn from them, and a small volume on the "Borderland of Epilepsy" contains much that is interesting and useful. It has been translated into German. Several volumes of clinical lectures have also been published.

We are still too near the epoch in neurology so closely associated with the work of Gowers to estimate properly his position in it. Yet the scientific advances in that department of medicine have been so great and rapid as to make it easier perhaps to appreciate his great work without the danger of over-estimating its importance. It may be stated without fear of contradiction that Gowers was an extraordinary observer, accurate and painstaking, with a wide horizon and a sound judgment which made his deductions from observations both definite and reliable. He had a marvellous power of what might be called intensive deduction. He was a rapid reader and worker, and could crystallise the gist of much reading in a very few sentences. He had great capacity for work, and although he was not always an easy man to work with (for he did not "suffer fools gladly") yet no one was more appreciative of help and assistance than he was. His position in neurolcgy was unique, because he was a great observer and a still greater expounder. His teaching power was remarkable, and to his out-patient afternoons at the National Hospital in Queen-square in the "eighties" must be traced in large degree the deservedly high reputation which that hospital enjoys as the chief centre of neurological teaching in this country at the present time. And in his publications, especially in his "Manual," this extraordinary power of assimilation of knowledge from all quarters, always enriching, sometimes modifying his own observations, together with the faculty of setting it all out in clear and graphic language, is peculiarly striking. The late Dr. Hughlings Jackson often remarked that he would always be grateful to Gowers because of the manner in which Gowers had expounded the Jacksonian theories. Yet if Gowers had not been the wonderful teacher and expounder that he was he would have been recognised as a great investigator and observer.

He was the recipient of many honours. He was elected a Fellow of the Royal Society. He received the Hon. M.D. of Dublin and was elected an honorary Fellow of the Royal College of Physicians of Ireland; he was an honorary member of the American Neurological Association, of the Netherlands Society of Psychiatry and Neurology, of the Russian Society of Medicine, of the Royal Society of Science of Upsala, of the Society of International Medicine of Vienna, and he was LL.D. of the University of Edinburgh. He received the honour of knighthood in 1897.

It might well be thought that a man who was responsible for so much medical work had no time to indulge in hobbies. But Gowers was a diligent and skilful etcher, devoting much of his holiday time to this art. His work, some of which has been exhibited at the Royal Academy, is characterised by artistic feeling as well as by technical skill. He was also much interested in mosses, and his knowledge of them was extensive and minute. Indeed, it may be said that all aspects of nature held a strong appeal for him. The beauties of nature were a constant joy to him, and it is interesting to know that from early days he was a devoted admirer of Ruskin and a constant student of his works. He was an enthusiastic advocate of the use of shorthand, and himself an excellent stenographer, using shorthand for all his notes both of hospital and private patients.

Sir William Gowers married the daughter of Mr. Frederick Baines, of Leeds. She died in 1913, leaving four children—two sons and two daughters. It may be mentioned without impertinence that Sir William Gowers was peculiarly happy in his married life and a devoted husband and father.

JAMES MILLEN MOORE, L.R.C.P. & S. EDIN.—Great regret has been caused in Lurgan and the surrounding district by the sudden death on April 25th, at his residence in Lurgan, of a well-known practitioner, Mr. J. M. Moore. Mr. Moore, who was 68 years of age, had attended service in the parish church of Lurgan in the morning, but later in the day, while walking in his garden, he was suddenly taken ill. Making his way to his house, he was in the act of drinking a glass of water when he fell to the floor and died in a few minutes from cardiac failure, in the presence of two of his medical friends, who had been hastily summoned. A native of Dungiven, co. Londonderry, where his father and

several of his brothers practised, he studied at Foyle College, Londonderry, and at Queen's College, Belfast, and in 1868 he became L.R.C.P. & S. of Edinburgh. After assisting his father for a time, Mr. Moore settled in Lurgan, where he built up a large working-class practice. He also took a prominent part in the business and educational affairs of Lurgan. He is survived by an only son, his wife having pre-deceased him some years ago.

DEATH OF LIEUTENANT-COLONEL ROBERT MARK BRADFORD, A.M.S. (RETIRED).—Lieutenant-Colonel R. M. Bradford died recently at his residence, Bradford Peverell, near Dorchester. He was the son of the late Rev. J. Bradford, formerly vicar of Pinhoe, Devon, and received his medical education at St. Bartholomew's Hospital. He qualified as L.R.C.P. Edin. and M.R.C.S. Eng. in 1868, and shortly afterwards entered the Army Medical Service. On his retirement he took up his residence at Bradford Peverell, where he was highly esteemed. He was on the committee of the Dorset County Hospital and was secretary of the Dorset Orchestral Association.

DEATH OF PROFESSOR G. HEINRICIUS.—Professor Heinricius, who held the chair of midwifery and diseases of children in the University of Helsingfors, died recently, at the age of 62 years.

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

THE Fund has received in the last fortnight some large additions; these, however, have not been the result of recent subscriptions, but represent the paying to the treasurer of money collected over a considerable range of time by local funds. A splendid donation from the Canadian Committee brings the contributions from this source to nearly £1500.

The money in the hands of the Executive Committee is sufficient for immediate wants, as will have been gathered from the weekly reports in the medical and pharmaceutical press, but it is most important to understand that the calls upon the Fund in the future will be heavy.

THE LIVERPOOL FUND.

At a recent meeting of the committee formed under the auspices of the Liverpool Medical Institution it was resolved to remit £400 to the treasurer, Dr. H. A. Des Vœux. The Liverpool Fund still remains open, and attention may be drawn here to the fact that a considerable number of the medical profession in Liverpool and district, as well as of the members of the Liverpool Medical Institution, have not yet sent in their subscriptions. These will be gratefully welcomed by the local honorary treasurer, Dr. T. R. Bradshaw. The following list is the third; the first and second were published in THE LANCET of Jan. 23rd and Feb. 13th respectively.

	£	s.	d.
T. P. Cowen, Rainhill ...	4	4	0
Charles J. Macalister ...	3	3	0
J. P. Bligh	2	2	0
W. McIntyre Brown, West Kirby	2	2	0
W. E. Livsey	2	2	0
Robert Stevenson, Bootle	2	2	0
Wallasey Medical Society, per Dr. Seymour Davies	2	2	0
Anon	1	1	0
Percy Ashworth, Southport (2nd subscription)	1	1	0
G. T. Bogle	1	1	0
H. Haward Bywater ...	1	1	0
Mrs. H. Haward Bywater	1	1	0
A. Ross Carmichael ...	1	1	0
W. C. Costine	1	1	0
William Crooke, Liscard	1	1	0
Seymour Davies, Liscard	1	1	0
Walter Dawson	1	1	0
Percy Edwards	1	1	0
R. P. Edwards, Mold ...	1	1	0
J. H. Fardon, Birkenhead...	1	1	0
William Irvine	1	1	0
Henry Jones	1	1	0
Leslie Kingsford	1	1	0
W. McAfee, West Kirby	1	1	0
R. I. Richardson	1	1	0
F. W. Taylor, Blackburn	1	1	0
John Twiston Davies, Liscard	0	10	6
W. Howie	0	10	6
J. Leggate (second subscription)	0	10	6
F. G. McCaughey	0	10	6
S. Wilkinson	0	10	6

THE SCOTTISH FUND.

The third list of subscriptions to the Scottish Fund brings the total subscribed to £1113 18s. The first and second list of subscriptions were published in our issues of March 13th and April 10th respectively.

	£	s.	d.
Dr. N. Sydney-Williams, India	2	0	0
Dr. T. Burn-Murdoch	1	1	0
Dr. A. J. Ballantyne ...	1	1	0
Dr. Thos. McGregor ...	1	1	0
Dr. James Parker	5	5	0
Dr. A. White Cassie ...	1	1	0
Dr. Jas. W. Cook	1	1	0
Dr. John Rowan	3	3	0
Dr. Wm. Snodgrass ...	2	2	0
Dr. L. R. Gray...	1	1	0
Per Dundee Branch of British Medical Association—			
Dr. Julia L. Pringle...	5	0	0
Dr. Emily C. Thomson	5	0	0
Dr. J. H. W. Laing (second donation) ...	2	2	0
Dr. J. K. Tulloch ...	5	0	0
Dr. G. A. Rorie	2	2	0
Dr. C. Shoon	1	1	0
Dr. M. F. Anderson ...	1	1	0
Dr. C. Kerr	3	3	0
Dr. D. N. Anton... ...	1	1	0
Dr. H. E. Fraser... ...	1	1	0
Dr. C. S. Young... ...	1	1	0
Dr. W. C. Anderson ...	1	1	0
Dr. J. M. Whyte ...	1	1	0
Dr. J. Crawford	1	1	0
Mr. R. P. Mathers ...	3	3	0
Dr. W. S. Malcolm ...	3	3	0
Mr. J. Anderson	2	2	0
Dr. A. B. Dalgetty ...	0	10	6
Dr. D. Laing, ...	1	1	0
Dr. J. A. Dewar... ...	1	1	0
Dr. J. Richardson ...	1	1	0
Dr. J. Ewan Taylor ...	1	0	0
Dr. W. E. Foggie ...	1	1	0
Dr. F. M. Milne... ...	1	1	0
Dr. C. R. Marshall ...	1	1	0
Dr. S. W. Smith... ...	1	1	0
Dr. R. Johnston... ...	2	2	0
Anonymous	0	10	6
Dr. James Watt, Ventnor	0	10	6
Dr. John Anderson ...	1	1	0
Dr. J. Isdale Greig ...	1	1	0
Dr. John McLaren	1	1	0
Association of School Medical Officers of Scotland (per Dr. Hunter), second contribution	5	5	0
West Lothian Local Medical Committee (per Dr. Hunter)... ...	3	3	0
Dr. J. J. Robertson ...	1	1	0
Dr. W. Oliphant Walker	1	1	0
Sister J. W. Watt, Royal Infirmary, Edinburgh.	1	0	0
Dundee and E. of Scotland Pharmaceutical Assoc., per Mr. Jas. Robertson	5	0	0
Mr. William Dow	1	1	0
Mr. R. G. Howat	1	1	0
Mr. S. G. Crowden ...	0	10	0
Miss E. Miller...	0	10	0
"An Assistant" (anonymous)	0	5	0
Mr. M. Hoppenstein ...	0	2	6

THE WEEK'S SUBSCRIPTIONS.

The subscriptions received by Dr. Des Vœux up to Tuesday evening last, in addition to those previously acknowledged, are as follows:—

	£	s.	d.
Mr. J. P. Ellerington (La Pharmacie Française) (seventh donation, total £50)	5	0	0
Mr. A. W. Sanders... ...	1	0	0
Southern Branch B.M.A. (per Dr. James Green, Hon. Sec.) (sixth donation, total £81 4s. 6d.)—			
Dr. Chas. C. Jeffery	1	1	0
Dr. Archibald Leishman	1	1	0
Dr. J. G. Blackman ...	1	0	0
Dr. R. A. Weston ...	1	1	0
Dr. E. F. S. Green ...	1	0	0
Canadian Committee (per Dr. J. Gibb Wishart, Hon. Treas.), (fifth donation, total £1427 3s. 11d.)	500	0	0
United Hospitals Club (per Dr. J. R. Bosworth, Hon. Sec.) (second donation, total £50)	25	0	0
Dr. H. Clifton Hughes "A Friend" (per H. C. H.)	1	0	0
Mr. R. Broadhead	0	10	6
Shropshire and Mid-Wales Branch, B.M.A. (per Dr. A. G. Mackenzie, Hon. Sec.) (eighth donation, total £46 14s.)—			
Dr. R. A. F. Exham ...	0	10	6
North of England Branch of Belgian Doctors' and Pharmacists' Relief Fund (per Dr. James Don and Mr. A. S. Perceval, Hon. Secs.) (tenth donation, total £369 18s. 6d.)—			
Dr. Munro	1	1	0
Part proceeds of Belgian Flag Day, given by the Women Workers at Wheatley Hill (per W. W. Jones)	18	18	6
Miss J. Phillips	0	5	0
Mr. H. R. Carson	0	5	0
Mr. F. W. Sadler	0	10	0
Orange Free State Pharmaceutical Society, Bloemfontein (per Mr. H. H. Greenwood, Hon. Sec.)	5	0	0
Australasian Pharmaceutical Conference (per the Agent-General), New South Wales	152	0	0
Holderness and Howdenshire Pharmacists' Association (per Mr. C. Morrow)...	1	0	0

Subscriptions to the Fund should be sent to the treasurer of the Fund, Dr. H. A. Des Vœux, at 14, Buckingham-gate, London, S.W., and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Ltd.

THE APPEAL FOR SURGICAL INSTRUMENTS.

The Master of the Society of Apothecaries begs to acknowledge the receipt of surgical instruments kindly contributed by the following donors since the publication of the last list:—

Miss C. W. Hyde, Southampton; Dr. C. W. Buckley, Brixton; Mr. A. Broomhall, Hull (per the Voluntary Aid Committee); and Mrs. C. J. Kayser, Fleet.

Medical News.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—At the First Professional Examination for the Licence in Dental Surgery on April 29th and 30th the following candidates were approved in the undermentioned subjects:—

Mechanical Dentistry and Dental Metallurgy.—Leslie Douglas Crabb, Edward Tong Crosoer, Richard John Gustavus Handel, and John Herbert, Guy's Hospital; Frank Hiam, Royal Dental Hospital; William Trevor Johnson, Birmingham University; Clifford Andrew Loveluck, Philip Henry Marsh, and William Mercer, Guy's Hospital; Ernest George Parkinson, Manchester University; Herbert Alfred Potter, Royal Dental Hospital; Harold John Powell and Bertie Moorwood Tonkin, Guy's Hospital; and Frederick Charles Truman and Ernest Arthur West, Birmingham University.

Mechanical Dentistry.—Albert William Ewart Chapple, Manchester University; William Ashley Cooper, Birmingham University and Guy's Hospital; Alfred Innes Cox, Royal Dental Hospital; Edmund Percy Deverall, Jenkin Albert Evans, and George Frederick Faustmann, Guy's Hospital; William Grant Milton, Bristol University; Johann Lodewijk te Water Naudé, Royal Dental Hospital; Arthur Arnold Osman, Guy's Hospital; Robert Wolff, Royal Dental Hospital; Walter Reginald Wotton, Guy's Hospital; and Malcolm Wykes, Birmingham University.

Dental Metallurgy.—Douglas William Smale Adams, Guy's Hospital; Harold John Allen, National Dental Hospital; Hubert John Vere Raywood Allin, Birmingham University; William Blair Spence Andrew, Royal Dental Hospital; Victor Henry Ball, London Hospital; John Laurence Barber, Liverpool University; Cyril Arthur Duvall Bishop, Guy's Hospital; Hubert Bruckmann, Royal Dental Hospital; Alfred Joseph Chiapps, National Dental Hospital; Eric Norman Commander, Birmingham University; Bertram Poole Cousins, Guy's Hospital; Thomas John Davies, London Hospital; Harold James Dawes, B.A. Cantab., Birmingham University; Pieter Jacob Stephanus de Wet and Hyman Fox, Guy's Hospital; Edwin Stowell Gawne, Liverpool University; Ralph Byron Gibson, Sheffield University; Lacy Norman Glaisby, Royal Dental Hospital; Edwin Spencer Goodwin and Philippus Elisa Grobbelaar, Guy's Hospital; Arthur Robert Hill, Royal Dental Hospital; John Christopher Johnson, Hugh Llywelyn Jones, Roy Victor Kingham, and Felix Reginald Knowler, Guy's Hospital; Frank Lawrence, London Hospital; John Leslie Lean, Guy's Hospital; Georges Maes, Brussels and Royal Dental Hospital; Harihar Gangadhar Moghe, L.M.S. Bombay, Bombay and National Dental Hospital; Edward Alfred Penney Parker, Guy's Hospital; Withiel Herbert Leslie Phillips, Birmingham University; Richard Stanislaus Roche and Ernest Findlay Shaw, Guy's Hospital; Cyril Fryer Smith, Liverpool University; and Herbert Victor Vogt, Albert Weinberg, George Wilshere, Thomas Alexander Moffat Wilson, D.M.D. Harvard, and William Adam Woodward, Guy's Hospital.

APOTHECARIES' HALL OF IRELAND.—The next examination for candidates seeking the licence in medicine, surgery, midwifery, and pharmacy will begin as follows:—Primary Examination, Monday, June 7th; Intermediate, Part I., Monday, June 14th; Intermediate, Part II., Monday, June 21st; and Final Examination, Monday, June 28th.

BRISTOL CHILDREN'S HOSPITAL.—The annual meeting of the Ladies' Auxiliary in connexion with this hospital was held recently under the presidency of the Duchess of Beaufort. The report showed that during 1914 38,000 houses had been canvassed, with the result that the sum of £1023 was raised for the funds of the institution. This is the largest amount collected in any year by the Ladies' Auxiliary.

PHARMACISTS AND THE MEDICAL CURRICULUM.—The secretary of the Pharmaceutical Society has written to the Registrar of the General Medical Council to inquire whether, in view of the shortage of medical men, the Council would be prepared to consider favourably the suggestion th t duly qualified pharmacists who desire to enter upon the medical curriculum might be excused the medical preliminary examination and such parts of the qualifying examination as are included in the subjects which the pharmacist has to pass in order to qualify under the Pharmacy Acts.

LEICESTER ROYAL INFIRMARY.—The number of in-patients received by this hospital, as shown by the 142nd annual report for the year 1914, was greater than that recorded in any previous year—namely, 4003. The average number of beds occupied during the year was 250·9. The total number of attendances in the out-patient department was 35,091, made up of 10,910 new cases, 22,034 old cases, and 2147 cases remaining on the books on Jan. 1st. It is satisfactory to note that the income has about equalled the expenditure, while the whole of the sources of income have been well maintained. For the building and equipment of a new pathological department a sum of £1800 has been promised, leaving a sum of £2400 to be obtained. With reference to the reconstruction of the Children's Hospital, which has resulted in the improved health both of patients and nurses, it is pointed out that a debt of £2200 remains to be liquidated, and the board hope that the hospital may be placed on the list of all subscribers to the infirmary for annual subscriptions and contributions.

THE annual general meeting of the Asylum Workers' Association will be held at 11, Chandos-street, Cavendish-square, W., on Wednesday next, May 19th. The chair will be taken at 3 P.M. by Sir John Jardine, K.C.I.E., M.P., LL.D., president of the association. The annual report will be submitted, officers elected, and presentations will be made of medals for long and meritorious nursing service. Matters of much importance to asylum workers will be discussed, and it is hoped that there will be a large and representative gathering of members and friends of the association. All communications should be made to Dr. G. E. Shuttleworth, honorary secretary, or Mr. J. F. Powell, acting honorary secretary, at 8, Lancaster-place, Hampstead.

ROYAL MINERAL WATER HOSPITAL, BATH.—The annual meeting of the subscribers to this hospital was held recently. The medical report was satisfactory, and the financial statement showed a deficit remained at the end of 1914 of £427. It is proposed to improve the accommodation of the institution and to provide radiant and other baths at an estimated cost of about £3000. Sir William Osler was elected a governor of the hospital.

CONVALESCENT HOME FOR CHILDREN, WESTON-SUPER-MARE.—The twenty-first annual meeting of the subscribers to this home at Weston-super-Mare, in connexion with the Bristol Children's Hospital, was held on May 5th. The medical report stated that during the year 285 boys and girls had been admitted; of these, 204 were cured, 60 much improved, 12 improved, and 4 had not improved, and 3 were transferred to the statutory hospital. The financial statement showed the expenditure exceeded the income by £89, and this sum had been met by the Bristol Children's Hospital.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

The Government and the Drink Problem.

THE Government have decided to abandon their proposals to impose additional taxation on beer, wine, and spirits. What they are now asking Parliament to do is to enact the compulsory bonding of whisky and most other spirits for a period of three years. For one year, in order to permit the trade to adapt itself to the new conditions, the withdrawal of spirits ranging from two to three years of age is to be permitted, but a surtax of 1*s.* a gallon will be enforced in this case. Rum and gin, which usually pass into consumption without detention for the purposes of being matured, are still to be allowed to escape compulsory bonding, but they are to be subject to an additional tax in order that they may not be placed at an advantage in regard to other spirits. The Government are proceeding with their Bill to invest them with special powers to control the licensed trade in munition areas.

Army Medical Service.

Some objection was taken in the House of Commons to the proposal in the Army Act (Amendment) Bill which allows a general officer commanding to transfer men from one branch of the military medical service, including the Army Medical Service, to another branch. An amendment was moved with the object of preventing the transfer of men from the Army Medical Service to a combatant unit. The argument was that it was unfair to utilise men who had enlisted on the understanding that they were not to be employed as combatants for the purpose of actual fighting. It was explained that the provision applied only to men, not to officers. Mr. TENNANT, the Under Secretary for War, said that where there were sufficient men and circumstances demanded their transfer it ought to be in the hands of the general officer commanding to make the transfer. He intimated that the Director-General of the Medical Service concurred in this view. The amendment was negatived without a division.

Milk and Dairies (Consolidation) Bill.

Mr. HERBERT LEWIS, the Parliamentary Secretary to the Local Government Board, has presented a Bill in the House of Commons "to consolidate certain enactments relating to milk and dairies." It has been read a first time.

HOUSE OF COMMONS.

WEDNESDAY, MAY 5TH.

Anti-inoculation Literature.

Mr. RONALD MCNEILL asked the Under Secretary for War whether he was prepared to take proceedings under the Defence of the Realm Act against persons attempting, by the distribution of literature or otherwise, to incite soldiers to endanger their own and their comrades' lives by refusing to undergo antityphoid inoculation.—Mr. TENNANT replied: The very satisfactory results which have been obtained by the combined efforts of officers of all ranks, both medical and regimental, as regards inoculation render it unnecessary to consider the question of taking proceedings under the Defence of the Realm Act.

Consultant Surgeons for the Navy.

Commander BELLAIRS asked the Secretary to the Treasury whether the amounts of £5000 a year paid to the six consultant surgeons now specially employed by the Admiralty came before the Treasury before the war broke out, the arrangement to employ them having been sanctioned in 1908.—Mr. ACLAND said in reply: No, sir, the salary was not submitted to the Treasury until the appointments were made. The Treasury gave general approval for the engagement of distinguished surgeons to look after sailors and other naval ratings who might be in need of their help. The scheme for doing this was proposed to the Treasury and sanctioned in principle in 1908, but the amounts intended to be paid were not at that time fixed.

Commander BELLAIRS: In view of the fact that no similar arrangement was made by the War Office, and the fact that the navy has not one-hundredth part of the casualties or the problems arising from casualties which the army has to face, will the Treasury take the fact into consideration and terminate this arrangement?—Mr. ACLAND: No, sir, the Treasury will not terminate this arrangement. It is surely of the utmost importance that our wounded men should have at their disposal the services of these extremely distinguished persons, and I cannot see my way to terminate this arrangement.

Commander BELLAIRS: Will the honourable Member take into consideration the fact that very distinguished surgeons and medical men are now serving in the army upon the pay of an ordinary colonel, and does he not see how undesirable it is that these comparisons should be drawn?—The DEPUTY SPEAKER: Order, order. That is a matter for debate.

Commander BELLAIRS asked the Secretary to the Admiralty whether, in view of the fact that there were so few casualties in the navy which had not been dealt with by the regular surgeons of the navy, he would consent to transfer the services of these six consultant surgeons to the War Office—Mr. MACNAMARA answered: That is covered by a reply which has already been given.

Commander BELLAIRS: Is the right honourable gentleman aware that there are two gentlemen at the Admiralty, Fellows of the Royal College of Surgeons, who are doing nothing but clerical work? Will he consent to give a return of the number of operations performed by these gentlemen and the number performed by surgeons at the regular hospitals?

The DEPUTY SPEAKER: That is rather a subject for debate.

Commander BELLAIRS: I will put a question down.

Nitric Acid Fumes.

Mr. ROWLANDS asked the Home Secretary whether his attention had been called to the inquest held at Dartford on April 29th into the death of a workman while employed in some gun-cotton works, from the effects of nitric acid fumes; whether he had had a report of the case; and whether the precautions taken were such as to prevent a recurrence.—Mr. MCKENNA replied: I have received a report from the medical inspector of factories who investigated the case and attended the inquest. It appears that the workman had full opportunity of escaping from the fumes, but was unaware of their dangerous nature. The inspector has recommended the issue of instructions to the workmen and certain other precautions which should prevent a recurrence of any similar accident, and the firm has undertaken to adopt the necessary precautions. The matter will be carefully watched.

THURSDAY, MAY 6TH.

Civilian Medical Men and the War Office.

Mr. JOYNSON-HICKS asked the Under Secretary for War whether any civilian doctors were employed by the army at salaries of upwards of £3000 per annum; if so, who were they and what were they paid; and how many civilian doctors were receiving rates of pay higher than doctors of corresponding rank in the Royal Army Medical Corps.—Mr. TENNANT answered: There are no civilian medical men receiving higher rates of pay than officers of corresponding rank in the Royal Army Medical Corps and the Army Medical Service.

Commander BELLAIRS: Will not inconvenience arise from the fact that the Admiralty are paying four times as much as the Army?

The DEPUTY SPEAKER: I would remind the honourable member that this is not the time for argument.

Bangour Asylum.

Mr. HOGGE asked the Under Secretary for War whether Bangour Asylum was being converted into a military hospital, and, if so, what arrangements were being made so that the treatment of the present inmates was not interfered with.—Mr. TENNANT answered: Yes, sir, Bangour Asylum is being converted into a military hospital. I should be glad if my honourable friend would address the second part of the question to the Secretary for Scotland.

Exhaustion and Nerve Shock in the Army.

Colonel WHITE asked the Under Secretary for War whether arrangements had now been made whereby men, and more especially non-commissioned officers, who had been serving in the firing line for many months, and who were suffering from exhaustion and nerve shock, might be granted furloughs of six weeks to two months in cases where the reserve units of their regiments could supply the deficiency so caused.—Mr. TENNANT said in reply: All non-commissioned officers and men who in the opinion of the medical authorities are suffering from exhaustion and nervous shock and require rest are sent home until they are recovered.

Artificial Limbs for Wounded Soldiers.

Replying to Mr. PARTINGTON, Mr. TENNANT said: Arrangements have been in existence for many years whereby a soldier who has, while serving, lost a limb in consequence of disease or injury, is provided with an artificial limb at the public expense. The Commissioners of the Royal Hospital, Chelsea, arrange for the supply of artificial limbs to such soldiers.

Asphyxiating Gases.

Colonel WHITE asked the Under Secretary for War whether protective helmets or masks against asphyxiating gas had actually been issued to the troops at the front.—Mr. TENNANT replied: When the Germans first introduced gas as a weapon of warfare we sent out 1,000,000 respirators, which were supplied to us originally from the Admiralty. These respirators were not found to be so efficacious as we desired, and they were supplemented by another form of respirator, the cotton waste, which was saturated with a solution of carbonate of soda and hyposulphite of soda, being held in place by a veil. That is now being used by the troops. The question has arisen whether it would not be preferable to have a helmet such as is used by fishermen, which is made of woollen material with talc spaces for the eyes, the cotton waste inside being saturated with the same solution. Dr. Haldane has again gone to the front to conduct experiments with these various materials and methods.

The Duty on Medicinal Alcohol.

Mr. HORNER asked the Chancellor of the Exchequer whether, having regard to the fact that ethyl-alcohol, upon which duty was payable, was essential in the manufacture of many medicines used in both human and veterinary practice, the Government would allow a rebate to be granted to the manufacturers or other means adopted by which this duty would not become a tax upon the alcohol used in their preparation, seeing that otherwise the imposition of the contemplated duties would largely increase the cost of these medicines to all users, and thus press with excessive severity upon the poor and add enormously to the expenses of hospitals and charitable institutions.—Mr. LLOYD GEORGE answered: The whole question is under consideration.

International Opium Conference.

Sir J. D. REES asked the Secretary of State for Foreign Affairs whether any and, if so, what action was to be taken upon the correspondence respecting the Third International Opium Conference; whether it was proposed to pursue this matter further during the continuance of the war; and, if not, with what object the report of the British delegates was to be presented to Parliament as soon as the *protocol de clôture* was officially received from the Netherlands Government.—Sir EDWARD GREY replied: No further action has been taken beyond depositing the ratification of the signature of the British delegates, nor is it practicable to take any further action at present. The correspondence respecting the third conference, including the report of the British delegates and the *protocol de clôture*, was laid before the House in February last in accordance with an undertaking given in the House with the object of making all the available information accessible to those members and the general public who are interested in this question.

TUESDAY, MAY 11TH.

Release of Medical Personnel.

Lord ROBERT CECIL asked the Secretary of State for Foreign Affairs what progress had been made for the

release of medical personnel detained in the various belligerent countries.—Sir EDWARD GREY replied: As will be seen from White Paper No. 8 (Miscellaneous) His Majesty's Government accepted in its main outline the interpretation placed by the German Government on the provisions of the Geneva Convention dealing with the release of medical personnel, with the reservation that such personnel should not be detained in connexion with new work. The German Government pointed out that there were certain epidemics amongst the prisoners in German detention camps which require expert assistance. This referred principally to typhus, which had broken out amongst Russian prisoners, and in which disease Russian doctors were more expert than German doctors. On further consideration, His Majesty's Government decided that circumstances, such as the outbreak of obscure epidemics among prisoners, might arise in which the captors might be justified by humane considerations in retaining medical personnel who are thoroughly competent to deal with the disease for a period longer than that which is ordinarily permissible. A note to this effect was addressed to the United States Ambassador on April 30th, and an answer has not yet been received.

Medical Consultants to the Navy.

Commander BELLAIRS asked the Secretary to the Admiralty whether the highest medical rank in the Navy was that of surgeon-general at a full-pay rate of £1300 per annum, and, if so, whether this fact was taken into full consideration when the arrangement was made to remunerate consultants for short duty at the rate of £5000 per annum.—Mr. MACNAMARA replied: A surgeon-general of the Navy when employed at any of our naval hospitals draws a salary of £1300 and charge pay at the rate of £182 10s. per annum. He is also in the occupation of a house valued at £70 per annum. All the facts bearing on the question were taken into consideration when deciding on the remuneration to be paid to consultants.

Mr. JAMES HOPE asked the Secretary to the Admiralty whether the number of civilian doctors now in the service of the Navy was in excess of the needs of that service; and whether he would sanction the transfer of a limited number of such doctors to the service of the army.—Mr. MACNAMARA replied: The answer to the first part of the question is in the negative. In these circumstances it would not be possible to adopt the suggestion contained in the second part. As regards the special consultants to whom reference has been made in an earlier question, if a specific request were made for help of one of them for any particular operation or for any special consultation, it would be certainly acceded to if it was possible; but the daily duty that has to be performed by these gentlemen in naval hospitals would not allow of the utilisation of their services by the army to a greater extent than this.

The Drug Fund.

Mr. SNOWDEN asked the Chancellor of the Duchy of Lancaster whether he had received a resolution passed by the Insurance Committee for the borough of Blackburn appreciating the action proposed to be taken by the Insurance Commissioners respecting the deficits in the drug funds of the various overspent Insurance Committees for the year 1913, and expressing the desire that a Departmental Committee be appointed to inquire into the causes of and remedies for the continuing deficiencies in the Drug Fund in insurance areas, and for an amendment of Article 40 of the Medical Benefit Regulations; and whether it was intended to carry out these suggestions.—Mr. MONTAGU replied: The answer to the first part of the question is in the affirmative. In reply to the last part, the cost of the supply of drugs under the Insurance Act is already the subject of inquiry by a Departmental Committee which has been specially appointed for the purpose. Before considering any further action I am awaiting their report.

Salaries of Cork Panel Practitioners.

Mr. CREAN asked the Chancellor of the Duchy of Lancaster whether he was aware that the salaries of the panel doctors of the city of Cork are now six months in arrear; whether the Insurance Commissioners in dealing with the county panel doctors paid only three months' salary about three months ago, six months' salary being then due; and whether he would have this state of things attended to immediately in the interest of the service.—Mr. MONTAGU said in reply: I am informed by the Irish Insurance Commissioners that further payments on account will be made to the doctors referred to both in the county borough and the county in a few days.

WEDNESDAY, MAY 12TH.

Consulting Surgeons with the Army.

Commander BELLAIRS asked the Financial Secretary to the War Office, in view of the fact that the Admiralty were paying six consultant physicians and surgeons serving on shore in Great Britain at a rate equal to 3·9 times the pay of the highest-salaried surgeon-generals of the navy, in addition to the earnings of a certain amount of private practice, whether any difficulties had thereby resulted in regard to the distinguished civil surgeons who so patriotically went to France at the ordinary rates of army pay.—Mr. H. BAKER answered: No, sir. There have been no difficulties with regard to the pay and status of the consulting physicians and surgeons working with the army in France.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

ANDERSON, A. W., M.D., C.M. Edin., has been appointed Medical Officer of the Stewartry Parish of Kirkgunzeon.

BARLOW, SIR THOMAS, M.D. Lond., F.R.S., has been elected to serve on the Senate of the University of London.

BLIGH, J. A. MURRAY, M.D. Liverp., has been appointed Honorary Physician to the David Lewis Northern Hospital.

DAWSON, J. MAXWELL, M.D., C.M. Edin., D.P.H., has been appointed Medical Officer of Health for the Burgh of Buckhaven, and Medical Superintendent of the Cameron Hospital.

HARPER, JOHN MAURICE, M.R.C.S., has been appointed temporary Medical Officer of Health for the Bath Rural District.

JUDD, CHARLES F., M.B., B.Ch. Dubl., has been appointed Medical Officer for the Stillorgan Dispensary District.

MITCHELL, T. C., M.R.C.S., L.R.C.P. Lond., has been appointed Medical Officer of Health for the Wath Rural District.

PARSONS, LEONARD G., M.D. Lond., M.R.C.P., has been appointed Lecturer in Infant Hygiene and the Diseases Peculiar to Children in the University of Birmingham.

WELLS, S. R., M.D. Lond., has been elected to serve on the Senate of the University of London.

WILLIAMSON, JAMES, M.B., Ch.B., has been appointed an Honorary Ophthalmic Surgeon to the Bury Infirmary.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).
When the application of a Belgian medical man would be considered the advertisers are requested to communicate with the Editor.

ALTON, HANTS, LORD MAYOR TRELOAR CRIPPLES' HOSPITAL.—Two Assistant Resident Medical Officers. Salary as arranged, with board, residence, and laundry.

BIRKENHEAD BOROUGH HOSPITAL.—Female Senior and Junior House Surgeons. Salary £180 and £150 per annum respectively, with board and laundry.

BIRMINGHAM GENERAL DISPENSARY.—Resident Medical Officer, unmarried. Salary £250 per annum, with apartments, attendance, &c.

BIRMINGHAM, JAFFRAY BRANCH OF GENERAL HOSPITAL, Gravelly Hill.—Resident Medical and Surgical Officer. Salary £150 per annum, with board, residence, and washing.

BIRMINGHAM AND MIDLAND EYE HOSPITAL.—Senior House Surgeon Salary £110 per annum, with board, residence, and attendance.

BIRMINGHAM AND MIDLAND HOSPITAL FOR SKIN AND URINARY DISEASES.—Clinical Assistant for three months. Salary at rate of 52 guineas per annum. Also Clinical Assistant, for six months, to Electrical Department. Salary at rate of 52 guineas per annum.

BIRMINGHAM, ROMSLEY HILL SANATORIUM FOR CONSUMPTIVES.—Assistant Resident Medical Officer, unmarried. Salary £250 per annum, with board, apartments, and laundry.

BOLINGBROKE HOSPITAL, Wandsworth Common, S.W.—Resident Medical Officer. Salary £300 per annum. Also House Surgeon. Salary £100 per annum, with board-residence.

BOLTON INFIRMARY AND DISPENSARY.—Third House Surgeon. Salary £170 per annum, with apartments, board, and attendance.

BOURNEMOUTH, ROYAL VICTORIA AND WEST HANTS HOSPITAL (BOSCOMBE BRANCH).—House Surgeon for six months. Salary £100 per annum, with board, lodging, washing, &c.

BRIGHTON EDUCATION COMMITTEE.—Temporary Junior School Doctor. Salary at rate of £350 per annum.

BRISTOL, BEAUFORT WAR HOSPITAL.—Chief Resident Physician.

BRISTOL GENERAL HOSPITAL.—Second House Physician, House Surgeon, Casualty House Surgeon, and Resident Obstetric Officer, all for six months. Salary at rate of £150 per annum, with board, residence, &c.

BRISTOL ROYAL INFIRMARY.—Throat, Nose, and Ear House Surgeon for six months. Salary at rate of £120 per annum, with board, apartments, and laundry.

BURNLEY UNION WORKHOUSE.—Resident Assistant Medical Officer or Locum Tenens. Salary £200 per annum, with apartments, rations, washing, and attendance.

BURNLEY, VICTORIA HOSPITAL.—House Surgeon. Salary £135 per annum, with residence, board, and washing.

BURY INFIRMARY.—Senior and Junior House Surgeons. Salary £175 and £150 per annum respectively, with board, residence, and washing.

BUXTON, DERBYSHIRE, DEVONSHIRE HOSPITAL.—Assistant House Physician for six months. Salary £100 per annum, with apartments, board, and laundry.

CARLISLE NON-PROVIDENT DISPENSARY.—Resident Medical Officer. Salary £200 per annum, with apartments (not board).

CARMARTHEN, JOINT COUNTIES ASYLUM.—Temporary Second Assistant Medical Officer. Salary at rate of £200 per annum, with board, lodging, washing, &c.

CROYDON BOROUGH HOSPITAL.—Senior Resident Medical Officer and Bacteriologist. Salary £200 per annum, with board, residence, and washing. Also Assistant Resident Medical Officer. Salary £150 per annum, with board, residence, and laundry.

DENBIGH, NORTH WALES COUNTIES ASYLUM.—Second Assistant Medical Officer. Salary £220 per annum, with apartments, board, attendance, and washing.

DERBYSHIRE COUNTY COUNCIL.—Three School Medical Officers. Salary £400 per annum. Also Assistant in Sanatorium. Salary £250 per annum, with board, laundry, and lodging.

DERBY, MICKLEOVER COUNTY ASYLUM.—Medical Superintendent. Salary £550 per annum, with house, laundry, &c.

DUMFRIES, CRICHTON ROYAL.—Temporary Assistant Physician, unmarried. Salary at rate of 5 guineas a week, with apartments, board, laundry, and attendance.

ESSEX EDUCATION COMMITTEE.—Temporary Female School Medical Inspector. Salary £300 per annum.

EXETER, ROYAL DEVON AND EXETER HOSPITAL.—House Physician for six months. Salary at rate of £150 per annum, with board, apartments, and washing.

GRAVESEND HOSPITAL.—House Surgeon. Liberal salary, with board, residence, and washing.

GREAT NORTHERN CENTRAL HOSPITAL, Holloway, N.—House Surgeon for six months. Salary at rate of £60 per annum, with board, residence, and laundry.

GUILDFORD, ROYAL SURREY COUNTY HOSPITAL.—House Surgeon. Salary £150 per annum, with board, residence, and laundry.

HEMEL HEMPSTEAD, HERTS, WEST HERTS HOSPITAL.—Resident Medical Officer. Salary to be a matter of arrangement. With rooms, board, and washing.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—House Physician for six months. Salary 30 guineas.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—House Surgeon, unmarried, for six months. Salary £50, with board, residence, &c.

HULL ROYAL INFIRMARY.—House Physician, unmarried. Salary £105 per annum, with board and apartments. Also Assistant House Surgeon. Salary at rate of £100 per annum, with board and lodging. Also Casualty House Surgeon. Salary at rate of £80, with board and lodging.

INDIAN MEDICAL SERVICE.—Ten Commissions.

IPSWICH BOROUGH MENTAL HOSPITAL.—Resident Medical Superintendent. Salary £400 per annum, with residence, washing, &c.

KING EDWARD VII. SANATORIUM, Midhurst, Sussex.—Second Assistant Medical Officer. Salary £150 per annum, with board, lodging, and attendance.

LEEDS GENERAL INFIRMARY.—Resident Casualty Officer. Salary £125 per annum, with board, residence, and laundry. Also Resident Aural Officer. Salary £100 per annum, with board, residence, and laundry.

LIVERPOOL, BROWNLOW HILL INSTITUTION.—Resident Assistant Medical Officer. Salary at rate of £300 per annum, with rations, &c.

LOCHGOILHEAD AND KILMORICH PARISH.—Medical Officer and Vaccinator. Salary £100 per annum.

LONDON SKIN HOSPITAL, 40, Fitzroy-square, W.—Honorary Assistant Physician or Assistant Surgeon.

MANCHESTER, ANCOATS HOSPITAL.—Two Residents.

MANCHESTER, COUNTY ASYLUM, Prestwich.—Assistant Medical Officer, unmarried. Salary £250 per annum, with board, apartments, attendance, and washing.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN, Parkplace, Cheetham Hill-road.—House Surgeon. Salary £120 per annum, with apartments and board.

MILE END OLD TOWN INFIRMARY.—Assistant Medical Officer. Salary £275 per annum, with board, lodging, and washing.

NEWARK BOROUGH AND RURAL DISTRICT.—Medical Officer of Health, who would also be appointed School Medical Officer for the Borough, Medical Officer in charge of Isolation Hospital, and Medical Officer to the Borough Police. Salary £430 per annum.

NORTHUMBERLAND COUNTY COUNCIL.—Temporary Tuberculosis Officer. Salary 7 guineas a week.

NOTTINGHAM CHILDREN'S HOSPITAL.—Female House Surgeon. Salary at rate of £150 per annum, with apartments, board, and washing.

NOTTINGHAM GENERAL HOSPITAL.—Assistant House Surgeon. Salary at rate of £250 per annum, with board, residence, and laundry.

PLYMOUTH, SOUTH DEVON AND EAST CORNWALL HOSPITAL.—House Surgeon. Salary £120 per annum, with board, residence, and washing.

PORTSMOUTH CORPORATION MENTAL HOSPITAL.—Assistant Medical Officer. Salary £250 per annum, with board, apartments, attendance, and washing.

PORTSMOUTH ROYAL HOSPITAL.—House Surgeon for six months. Salary £150 per annum, with board, &c.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone-road, N.W.—Assistant Resident Medical Officer for four months. Salary at rate of £50 per annum, with board, residence, and washing.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney-road, Bethnal Green, E.—House Physician and House Surgeon for six months. Salary £100 per annum, with board, residence, and washing. Also Assistant Physician.

ROTHERHAM HOSPITAL.—Senior and Junior House Surgeons. Salary £200 and £125 per annum respectively, with board, lodgings, and washing.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—Hunterian Professors and the Arris and Gale Lecturer.

ROYAL NATIONAL ORTHOPÆDIC HOSPITAL, 234, Great Portland-street, W.—Resident Medical Officer.

ST. MARY'S HOSPITAL FOR WOMEN AND CHILDREN, Plaistow, E.—Resident Medical Officer and Assistant Resident Medical Officer. Salary at rate of £110 and £90 per annum respectively, with board, residence, and laundry.

ST. PANCRAS DISPENSARY, 39, Oakley-square, N.W.—Resident Medical Officer, unmarried. Salary £300 per annum, with residence and attendance.

SALISBURY GENERAL INFIRMARY.—House Surgeon and Assistant House Surgeon, unmarried. Salary £100 and £75 per annum respectively, with apartments, board, lodging, and washing.

SCARBOROUGH BOROUGH.—Temporary Medical Officer of Health. Salary at rate of £400 per annum.

SCARBOROUGH HOSPITAL AND DISPENSARY.—Senior and Junior House Surgeons. Salary £100 and £80 per annum respectively, with board, residence, &c.

SHEFFIELD ROYAL INFIRMARY.—House Surgeon and Assistant House Physician. Salary £100 per annum, with board and residence.

SHEFFIELD, WHARNCLIFFE WAR HOSPITAL, Middlewood-road.—Resident Medical Officers.

SHREWSBURY, ROYAL SALOP INFIRMARY.—House Physician. Salary at rate of £110 per annum, with board and apartments.

SOMALILAND.—Medical Officer. Salary £400 per annum, with free quarters.

SOUTHAMPTON, PARISH INFIRMARY, Shirley Warren.—Resident Assistant Medical Officer. Salary £200 per annum, with apartments, rations, washing, and attendance.

SOUTH SHIELDS, INGHAM INFIRMARY AND SOUTH SHIELDS AND WESTOE DISPENSARY.—Female House Surgeon. Salary £150 per annum, with residence, board, and washing.

STEPNEY TUBERCULOSIS DISPENSARY.—Medical Officer. Salary £500 per annum.

SWANSEA EDUCATION COMMITTEE.—Temporary Assistant School Medical Officer. Salary £300 per annum.

TUNBRIDGE WELLS GENERAL HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board, residence, &c.

VENTNOR, ROYAL NATIONAL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST ON THE SEPARATE PRINCIPLE.—Assistant Resident Medical Officer, unmarried. Salary £150 per annum, with board, lodging, &c.

WALSALL AND DISTRICT HOSPITAL.—Assistant House Surgeon and Anæsthetist. Salary £150 per annum, with board, residence, and laundry.

WARRINGTON INFIRMARY AND DISPENSARY.—Junior House Surgeon. Salary at rate of £120 per annum, with board, apartments, and laundry.

WEST BROMWICH AND DISTRICT HOSPITAL.—House Surgeon and Assistant House Surgeon, unmarried. Salary £150 and £120 per annum respectively, with residence, board, and laundry.

WEST HAM AND EASTERN GENERAL HOSPITAL, Stratford, E.—House Physicians. Salary £120 and £100 per annum, with board, residence, and washing.

WEST HAM UNION.—Fourth Female Assistant Medical Officer at Infirmary, Whipps Cross-road, Leytonstone, N.E. Salary £160 per annum. Also Female Assistant Medical Officer at Workhouse, Union-road, Leytonstone, N.E. Salary £140 per annum. Each with usual residential allowances.

WIGAN, ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY.—Junior House Surgeon. Salary £150 per annum, with board, apartments, and washing.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—Female Resident Medical Officer for six months. Salary at rate of £150 per annum, with board, rooms, and laundry.

WORCESTER COUNTY AND CITY ASYLUM.—Assistant Medical Officer. Salary £250 per annum, all found.

WORCESTER GENERAL INFIRMARY.—Resident Medical Officer. Salary £150 per annum, with board, residence, and washing.

WOUNDED ALLIES RELIEF COMMITTEE, Sardinia House, Kingsway.—Medical Men to proceed to Montenegro to combat Typhus Epidemic.

Births, Marriages, and Deaths.

BIRTHS.

BROADBENT.—On May 7th, at Muswell-rise, Muswell-hill, N., to Dr. and Mrs. Reginald Broadbent, a daughter.

BROMLEY.—On May 7th, at The Warden's House, Guy's Hospital, the wife of Lancelot Bromley, M.C., F.R.C.S., of a daughter.

GASKELL.—On May 10th, at the Royal Naval College, Greenwich, the wife of Fleet-Surgeon Arthur Gaskell, R.N., of a son.

MACGLASHAN.—On May 4th, at Hartley-hill, Leeds, the wife of Dr. Keith B. MacGlashan, of a daughter.

SEYMOUR.—On May 7th, at Rosslyn-hill, Hampstead, the wife of Dr. E. A. Seymour, of a son.

SMITH.—On May 2nd, at the Taunton Nursing Home, Taunton, the wife of Lieutenant C. E. H. Smith, R.A.M.C., of a son.

SOWRY.—On May 6th, at Newcastle, Staffs, the wife of George H. Sowry, M.D., F.R.C.S., of a son.

TURNER.—On May 8th, at Anerley-road, Upper Norwood, the wife of Captain A. Scott Turner, R.A.M.C., of a daughter.

MARRIAGES.

BREMNER—LILLICO.—On May 8th, at the Parish Church, Croydon, Lieutenant-Colonel James Morrison Gardiner Bremner, M.B., to Kathleen, second daughter of Alderman William Lillico, J.P., Coombe Hill House, Croydon.

LUKYN-WILLIAMS—MACDONALD.—On May 5th, at Guilden Morden Parish Church, Herbert Temple Lukyn-Williams, M.B., Lieutenant, R.A.M.C., to Matilda Kate, daughter of the late Rev. C. J. MacDonald, B.A.

MAWSON—O'FARRELL.—On April 28th, at the Catholic Church, Haddington-road, Dublin, Dr. Owen Mawson, to Ellen, eldest daughter of Surgeon-General O'Farrell.

DEATHS.

BAILLIE.—On May 3rd, at The Larches, Tiverton, Peter Baillie, M.D. Edin., formerly of Whitworth, Lancashire.

JEFFERSON.—On May 4th, at West-street, Rochdale, Arthur John Jefferson, M.D. Lond., aged 59 years.

LOCKER.—On May 7th, at Kirby Cross, Essex, Edward Hawke Locker, M.R.C.S., L.R.C.P., late Surgeon R.A.M.C., aged 57 years.

MASON.—On May 7th, at Waxham Cottage, Gorleston, Alfred Leighton Mason, L.D.S. Eng., aged 34 years.

STIVENS.—On May 9th, at Park-street, Grosvenor-square, W., Bertram Herbert Lyne Stivens, M.D., of Garlogs, Stockbridge, Hants, in his 60th year.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

WINKLES.

IN the appeal of Leavett *v.* Clark heard by the Divisional Court recently, the appellant had been convicted under the Larceny Act, 1861, of which Section 24 imposes a penalty upon a person taking "fish" in any water which is private property or in which there is a private right of fishery. In this instance the defendant was picking up winkles upon certain mud flats, gathering some which had been left dry by the tide and others which were still in the water. The magistrates had decided that a winkle was a fish, and the Divisional Court was asked to hold that it was not and declined to do so. The difficulty arose out of the Act in question giving no definition of the word "fish," as to which the legislature seems to have been equally silent on other occasions. Counsel contended that a "fish" must be vertebrate and that the Act was designed to protect the ownership of something capable of being taken by angling. The principal case referred to was that of Caygill *v.* Thwaite, decided 30 years ago by a court consisting of Mr. Justice Mathew and Mr. Justice A. L. Smith, both of whom, it will be remembered, sat later in their lives in the Court of Appeal. In Caygill *v.* Thwaite the point was whether a "crayfish" was a fish. The name, of course, indicates nothing, as crayfish is a corruption of "écrevisse," and Mr. Justice Mathew, as Lord Reading pointed out in his judgment in Leavett *v.* Clark, could only say, "It is, perhaps, difficult to give any definite reason except that crayfish are fish." The Lord Chief Justice, Mr. Justice Avory, and Mr. Justice Low appear to have found scarcely better grounds for their decision, which was to follow Caygill *v.* Thwaite, as it had been so long held to be good law. The last-named judge is reported to have observed that he "saw no reason why a winkle should not be a fish." It may be suggested that some day definition should prevent the possibility of a man, who might honestly not know that he was doing wrong, being convicted as a fish poacher by establishing the true position of the "fractious penny winkle" and other molluscs.

WORK OF SCHOOLS FOR MOTHERS IN EDINBURGH.

IN the provincial Training College at Edinburgh a lecture was delivered recently under the auspices of the Edinburgh Child Study Association, entitled "Schools for Mothers as Centres for Social and Educational Work," by Miss E. V. Eckhard, Manchester. The lecturer said new enterprises were usually initiated by private effort, and when the value of an enterprise had been fully proved the State stepped in and offered help. Schools for mothers had now passed the experimental stage, and the State was giving financial help in England. The aim was to educate the mother through the child.

Since Jan. 1st five infant health centres have been opened in various parts of Edinburgh. Nine baby consultations a week are held, with a doctor in attendance. In addition, the centres are opened five other afternoons for health classes for mothers and instruction in infant clothing and feeding.

THE INHALATION OF CHLOROFORM IN BRONCHIAL CATARRH.

To the Editor of THE LANCET.

SIR,—I read with much pleasure Dr. Alfred S. Gubb's letter in your issue of April 24th on the value of chloroform inhalation in cases of violent paroxysmal cough and in the cough in cases of phthisis. In the "sixties" Dr. Churchill, of this city, recommended whiffs of chloroform to cut short paroxysmal cough in pertussis and phthisis, and for the past 30 years I have prescribed it in such cases. I recommend five or ten drops to be inhaled from a piece of fine cotton-wool. I may add that I have also prescribed it in cases of paroxysmal cough in the early stages of measles, and in no single instance have I seen any unpleasant results.

Dr. Richard Pearson, physician to the General Hospital, near Birmingham, writing in 1795 ("Miscellaneous Observations on Certain Remedies Used in Consumption," R. Baldwin, No. 47, Paternoster-row, London), says that he has "found the *vapour of æther* remarkably serviceable in phthisical cases. Patients who have inhaled it two or three times find it so grateful to their feelings that they are disposed to have recourse to it too often." His mode of applying was as follows: "One or two tea-spoonfuls of æther to be poured into a tea-saucer, which is held up to the mouth, and the vapour arising from it is drawn in with the breath. The inhalation is continued till the saucer becomes dry."

We learn from "La Grande Chirurgie de Guy de Chauliac," of 1363, that Theodoric used the vapour of hot water impregnated with an extract prepared from hypnotics and analgesics, such as mandragora, hemlock, and opium, which was inhaled until sleep was induced. Theodoric or Teodorico was an Italian surgeon and ecclesiastic who rose to be Bishop of Cervia. He enjoyed a high reputation for his skill in surgery, and wrote, in Latin, a treatise "On Surgery according to the System of Hugo de Lucca." He died in 1298.

I am, Sir, yours faithfully,

Dublin, April 26th, 1915. GEORGE FOY.

THE HOSPITAL ACCOMMODATION OF ENGLAND AND WALES.

Mr. Herbert Lewis, M.P., stated at Hemel Hempstead on May 6th that according to a Census by the Local Government Board the hospital accommodation of England and Wales is as follows:—

	Hospitals.	Beds.
General...	593	31,313
Special	222	13,654
Fever	755	31,149
Small-pox	362	7,946
Port Sanitary	30	418
Poor-law	700	94,001
Total	2662	178,481

COLONIAL VEGETABLE DRUGS.

THE current issue of the quarterly *Bulletin of the Imperial Institute* (Vol. XIII., No. 1) contains an interesting article, covering nearly 40 pages, on Investigations of Vegetable Drugs and Poisonous Plants made by the staff of the scientific and technical department of the Institute and by other investigators during recent years. The drugs examined include many which have a reputation among natives, and all the drugs have their source in the British possessions. Most of the "native drugs" are disappointing from the point of view of European medicine, but there are some notable exceptions, Podophyllum emodi, an Indian plant recognised in the British Pharmacopœia, being one of them. Other examples are the Egyptian plant Hyoscyamus muticus, a valuable source of the alkaloid atropine, the seeds of Peganum Harmala, which have long been used as an anthelmintic in the East, and the seeds of Croton Elliottianus, which Professor J. T. Cash, of Aberdeen University, and Mr. W. J. Dilling have found to be a useful laxative. A special article by Mr. W. R. Dunlop, of the Imperial Department of Agriculture for the West Indies, deals with the lime and lemon as sources of citric acid and essential oils. The *Bulletin* can be obtained from Mr. John Murray, Albemarle-street, W., price 2*s.* 6*d.* net.

"KHAKI": A TOPICAL MAGAZINE.

THE May number of *Khaki*, a magazine written for our sailors and soldiers, which is supplied gratis to them while on active service, contains, in addition to fiction, several articles of topical interest. Among the latter is the story of Turkey's influence in the East, with remarks on the probable site of the Garden of Eden. The magazine is published at Imperial House, Kingsway, London, W.C., at the price of 6*d.* net, and it deserves support, not only on account of its contents but also for the good work which the management of the journal is doing in helping British prisoners in Germany who have no relatives or friends.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

METEOROLOGICAL READINGS.

(Taken daily at 9.30 a.m. by Steward's Instruments.)

THE LANCET Office, May 12th, 1915.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
May 6	29·920	S.	1·76	107	76	56	57	60	Hazy
,, 7	30·010	E.	...	116	74	53	57	59	Fine
,, 8	30·138	E.	...	114	73	54	55	61	Fine
,, 9	30·290	E.	...	107	60	44	49	53	Fine
,, 10	30·340	N.E.	...	109	66	42	48	52	Fine
,, 11	30·052	E.	...	108	69	46	49	56	Fine
,, 12	29·724	S.W.	...	112	69	54	54	56	Cloudy

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY, Burlington House, London, W.

THURSDAY.—Papers:—Mr. H. Moore: On the Corpuscular Radiation liberated in Vapours by Homogeneous X Radiation (communicated by Prof. O. W. Richardson).—Mr. H. Richardson: The Absorption in Lead of γ Rays emitted by Radium B and Radium C (communicated by Sir E. Rutherford).—Mr. T. R. Merton: On the Application of Interference Methods to the Study of the Origin of Certain Spectrum Lines (communicated by Prof. A. Fowler).

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

TUESDAY.

GENERAL MEETING OF FELLOWS: at 5 P.M.
Ballot for the Election of Candidates to the Fellowship.

SECTION OF PSYCHIATRY (Hon. Secretaries—Bernard Hart, G. F. Barham): at 6 P.M.

Annual General Meeting.—Election of Officers and Council for Session 1915–1916.

WEDNESDAY.

SECTION OF THE HISTORY OF MEDICINE (Hon. Secretaries—Raymond Crawfurd, Leonard G. Guthrie): at 5 P.M.

Annual General Meeting.—Election of Officers and Council for Session 1915–1916.

Papers:
Dr. George C. Peachey: William Bromfield, Surgeon.
Dr. Charles Mercier: Paracelsus and Van Helmont.
Dr. Hector A. Colwell: Lionel Lockyer.

Exhibits:
Mr. Macleod Yearsley: Two Documents concerning Touching for the King's Evil.

THURSDAY.

SECTION OF DERMATOLOGY (Hon. Secretaries—S. E. Dore, A. M. H. Gray): at 5 P.M.

Exhibition of Cases (at 4.30 P.M.):

Annual General Meeting.—Election of Officers and Council for Session 1915–1916.

Dr. J. J. Pringle: Pemphigus Vegetans (shown before).
Dr. J. M. H. MacLeod: (1) Dermatitis Herpetiformis; (2) Chronic Pemphigus (?).
Dr. H. W. Barber: Lichen Planus Atrophicus in an Infant.
Dr. Parkes Weber: (1) Spurious Erythromelalgia: Non-syphilitic; (2) Arteritis Obliterans in a Jew.
Dr. D. Walsh: Pompholyx.
Dr. H. C. Semon: Mycetoma Pedis.

ROYAL SOCIETY OF ARTS, John-street, Adelphi, W.C.

MONDAY.—8 P.M., Cantor Lecture:—Dr. D. Sommerville: Foodstuffs. (Lecture IV.)

ILLUMINATING ENGINEERING SOCIETY, House of the Royal Society of Arts, 18, John-street, Adelphi, W.C.

TUESDAY.—8.15 P.M., Discussion on Some Points in Connexion with the Lighting of Rifle Ranges.

SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 11, Chandos-street, Cavendish-square, W.

FRIDAY.—8.30 P.M., Papers:—An Epidemic of African Tick Fever among the Troops in British Somaliland.—American Leishmaniasis.—Treatment of Bilharziasis by Thymo-Benzol.—Treatment of Ankylostomiasis by Milk of Higueron.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Dr. Simson: Diseases of Women. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. D. Armour: Operations. Dr. Pritchard: Bacterial Therapy Department. Mr. B. Harman and Mr. Gibb: Diseases of the Eye.

TUESDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations. Dr. Simson: Diseases of Women. Mr. Gibb: Diseases of the Eye.

THURSDAY.—9 A.M., Dr. Bernstein: Bacterial Therapy Department. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. D. Armour: Operations. Mr. B. Harman: Diseases of the Eye.

FRIDAY.—10 A.M., Dr. Simson: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Eye Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations.

THE THROAT HOSPITAL, Golden-square, W.

MONDAY.—5.15 P.M., Special Demonstration of Selected Cases.

THURSDAY.—5.15 P.M. Clinical Lecture.

For further particulars of the above Lectures, &c., see Advertisement Pages.

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